

It's not just about an
industry-leading IP backbone
that's as fast as it is reliable.

It's about giving your
subscribers everything
except a reason to leave.

ISP success stories start with a network you can count on. With Sprint, you'll get an industry-leading IP backbone with fast transmissions, exceptional survivability and service consistency, and 24/7 customer support. Plus, our unbeatable service level agreements even guarantee 100% site availability.* So, rather than solving problems and scrambling to hold on to your customer base, you can spend more time building it. Isn't that the point of contact?



For more information, call or visit our website
1-877-ISP-5044 sprint.com/isp



The point of contact™

LET THERE BE
(NETWORK)
LIGHT

AND NOW, A WORD FROM YOUR CUSTOMER

E-commerce sites are using third-party survey firms to generate quick customer feedback that emulates the Staples.com's Jackie Shostack can use to make changes on their sites. Page 48

COMPUTERWORLDTHISWEEK

MAY 22, 2000

NEWS

- 4 **FBI CONFIRMS** that a three-day crash of its background-check database gave criminals enough time to buy guns.
- 6 **IT EXECs COMPLAIN** Microsoft is using its new certification rules to push use of Windows 2000.
- 8 **MERGER COLLAPSES** between Corel and Inprise, prompting varied speculation about Inprise's future.
- 10 **BROKERAGE LAUNCHES** new telephone voice-recognition system for buying stocks.
- 12 **COMMITTEE FAILS** to reach consensus on controversial federal online privacy debate, gives FTC a range of options.
- 14 **MICROSOFT SAYS** it will develop a patch that will block future viruses from spreading through Outlook.
- 24 **COMPAQ GAINS CLOUT** in the enterprise server market with its new high-end Wildfire series.
- 28 **FCC CONSIDERS** approving use of ultrawideband technology, which can make wireless Internet connections as fast as their wired cousins.

MORE

Editorial Letters.....32, 33, 37
How to Contact CW.....104
Shark Tank.....106
Stock Ticker.....108
Company Index.....104

BUSINESS

- 42 **FARMERS PROTEST** planned online meat exchange, alleging such marketplaces violate antitrust laws.
- 42 **UTILITIES FLEX** their new competitive muscles as they race to set up online bill payment systems.
- 45 **BROKERAGES FACE** competition from online start-ups that offer free trades.
- 46 **BRICK AND MORTAR IS** poised for a comeback, predicts Reginald Foster, American Management Systems' e-business chief.
- WORKSTYLES**
- 47 **DELTA OFFERS** lots of opportunities for IT workers, says a Web-site developer there.
- 56 **IT WORKERS SHARE** tips on what it takes to keep them happy and on the job.
- QUICKSTUDY**
- 64 **VALUE CHAINS** are expensive to implement but worth the cost, say experts.

OPINIONS

- 32 **DON TAPSCOTT** says he believes that a clone of Napster's music-finding software could make the Web a wilder place with regard to copyright content.
- 33 **DAVID MOSCHELLA** writes that Microsoft isn't doing anything right in the aftermath of the government's recommendations

TECHNOLOGY

- 77 **MELISSA** ExploreZip worm and oow the "Love Bug" show what happens when we fail to protect our online identities.
- SECURITY JOURNAL**
- 78 **PAT PLUGS** a back door with a four-port Ethernet card and wastes a day off debugging his attempted fix.
- EXEC TECH**
- 80 **HOTELS THAT CATER** to business travelers are installing new network infrastructures and developing new guest programs — such as offering loaner laptops — to make their properties more business-user-friendly.
- FUTURE WATCH**
- 82 **ROBOTICS IS ON** the brink of fulfilling the potential that tantalized us for much of the 20th century, experts say.
- QUICKSTUDY**
- 83 **DIGITAL VIDEO** enhances the capabilities of the video format in terms of editing, richness of content and means of dissemination.

We have
monopolies
being created.
It raises red
flags.

DOUG PETERSON, FARMER, SCHOOLETEACHER AND MINNESOTA STATE REPRESENTATIVE, ON THE THURSDAY THAT H-T-O-N EXCHANGES WILL VIOLATE ANTITRUST LAWS AND RESTRICT THE RIGHTS OF FARMERS. THE FTC IS INVESTIGATING SEVERAL EXCHANGERS. SEE PAGE 42.

dation of a breakup in the antitrust case.

- 36 **ANDREW WILSON** says a bill to raise the H-1B visa cap will provide relief to talent-starved IT managers.
- 36 **WILLIAM M. ULRICH** doesn't buy the notion that IT is going the way of the dinosaur. Rather, he says, it can play a key, yet different, role

in the new, virtual world.

- 47 **JIM CHAMFY** says IT leaders must dare to dream about the potential of wireless technology in their organizations.
- 108 **FRANK HAYES** has an idea that can help IT professionals learn from the ways of the Internet: Make them get out of their cubicle farms so that they can start talking with end users.



AND NOW, A WORD FROM YOUR CUSTOMER

E-commerce sites are using third-party survey firms to generate quick customer feedback that executives like Staples.com's Jackie Sheback can use to make changes on their sites. Page 48

LET THERE BE (NETWORK) LIGHT

Optical networks have been around for years, but developments in optical switching and dense wavelength division multiplexing promise to eliminate some of the bottlenecks between corporate networks. Page 84



COMPUTERWORLD

MAY 22, 2000

NEWS

- 4 **FBI CONFIRMS** that a three-day crash of its background-check database gave criminals enough time to buy guns.
- 6 **IT EXES COMPLAIN** Microsoft is using its new certification rules to push use of Windows 2000.
- 8 **MERGER COLLAPSES** between Corel and Inprise, prompting varied speculation about Inprise's future.
- 10 **BROKERAGE LAUNCHES** new telephone voice-recognition system for buying stocks.
- 12 **COMMITTEE FAILS** to reach consensus on controversial federal online privacy debate, gives FTC a range of options.
- 14 **MICROSOFT SAYS** it will develop a patch that will block future viruses from spreading through Outlook.
- 24 **COMPAQ GAINS CLOUT** in the enterprise server market with its new high-end Wildfire series.
- 28 **FCC CONSIDERS** approving use of ultrawideband technology, which can make wireless Internet connections as fast as their wired cousins.

BUSINESS

- 42 **FARMERS PROTEST** planned online meat exchange, alleging such marketplaces violate antitrust laws.
- 42 **UTILITIES FLEX** their new competitive muscles as they race to set up online bill payment systems.
- 45 **BROKERAGES FACE** competition from online start-ups that offer free trades.
- 46 **BRICK AND MORTAR IS** poised for a comeback, predicts Reginald Foster, American Management Systems' e-business chief.
- WORKSTYLES**
- 47 **DELTA OFFERS** lots of opportunities for IT workers, says a Web-site developer there.
- 56 **IT WORKERS SHARE** tips on what it takes to keep them happy and on the job.
- QUICKSTUDY**
- 64 **VALUE CHAINS** are expensive to implement but worth the cost, say experts.

TECHNOLOGY

- 77 **MELISSA** ExploreZipworm and now the "Love Bug" show what happens when we fail to protect our online identities.
- SECURITY JOURNAL**
- 78 **PAT PLUGS** a back door with a four-port Ethernet card and wastes a day off debugging his attempted fix.
- EXEC TECH**
- 80 **HOTELS THAT CATER** to business travelers are installing new network infrastructures and developing new guest programs — such as offering loaner laptops — to make their properties more business-user-friendly.
- FUTURE WATCH**
- 82 **ROBOTICS IS ON** the brink of fulfilling the potential that tantalized us for much of the 20th century, experts say.
- QUICKSTUDY**
- 83 **DIGITAL VIDEO** enhances the capabilities of the video format in terms of editing, richness of content and means of dissemination.

We have monopolies being created. It raises red flags.

DOUG PETERSON, FARMER, SCHOOLETEACHER AND MINNESOTA STATE REPRESENTATIVE, ON THE THREAT THAT 8-TO-8 EXCHANGES WILL VIOLATE ANTITRUST LAWS AND RESTRICT THE RIGHTS OF FARMERS; THE FTC IS INVESTIGATING SEVERAL EXCHANGES. SEE PAGE 42.



OPINIONS

- 32 **DON TAPSCOTT** says he believes that a clone of Napster's music-finding software could make the Web a wilder place with regard to copyrightable content.
- 33 **DAVID MOSCHELLA** writes that Microsoft isn't doing anything right in the aftermath of the government's recommendation of a breakup in the antitrust case.
- 36 **ANDREW WILSON** says a bill to raise the H-1B visa cap will provide relief to talent-starved IT managers.
- 36 **WILLIAM M. ULRICH** doesn't buy the notion that IT is going the way of the dinosaur. Rather, he says, it can play a key, yet different, role

in the new, virtual world.

- 47 **JIM CHAMPY** says IT leaders must dare to dream about the potential of wireless technology in their organizations.
- 106 **FRANK HAYES** has an idea that can help IT professionals learn from the ways of the Internet: Make them get out of their cubicle farms so that they can start talking with end users.

MORE
Editorial Letters... 32, 33, 37
How to Contact CW... 104
Share Talk... 106
Stock Ticker... 103
Computing Index... 104

AT DEADLINE

More Dangerous 'Love Bug' Strikes

A new e-mail worm that uses a technique similar to that of the "Love Bug" was unleashed last week. But **VBS.Hov** could cause more damage: It changes its subject line so it automatically mails itself out to names in a victim's Microsoft Outlook address book, and it overwrites files on an infected system—both locally and on network drives. Antivirus vendors advised users to stop running Visual Basic scripts and the Windows scripting host and to check attachments before opening them. An Outlook patch is in the works from Microsoft Corp. (see page 14).

Online Retailer Boo.com Out of Cash

Just six months after its launch, London-based online clothing retailer Boo.com Group Ltd. collapsed last week after investors refused to put more money into the venture. Two partners of KPMG Corporate Recovery in the U.K. were appointed to liquidate the e-commerce venture and said they were optimistic that new investors could be found.

Automakers Stall Online Car Brokers

In a bid to protect their turf, Detroit-based General Motors Corp. and Dearborn, Mich.-based Ford Motor Co. recently advised automaker dealers about selling vehicles through online car brokers. GM and Ford say dealer salons want letters warning dealers that they could lose revenue and other incentives if they resell cars to Internet brokers.

Short Takes

IBM is resulting about 220,000 AC adapters used with some of its ThinkPad notebook computers and other mobile devices because they are potential fire hazards, the U.S. CONSUMER PRODUCT SAFETY COMMISSION said last week. . . . The U.S. HOUSE JUDICIARY COMMITTEE last week voted 10 to 11 to send to the full House a bill that proposes to remove the cap on the number of H-2B visas available to foreign workers during the next two years.

FBI Database Problem Halts Gun Checks

Buyer background checks stop for 66 hours

BY CHRISTINE MCGEEVER

THE 66-HOUR failure this month of an FBI database used to perform background checks on gun buyers was long enough to allow criminals to buy guns. The FBI confirmed last week. It was also the latest example of technical difficulties with a database that's barely 18 months old.

FBI spokesman Steve Fisher attributed the initial failure of the National Instant Criminal Background Check System (NICS), as well as the inability to automatically activate fail-over measures, to software problems.

"We went through standard protocols to try to restore service. Attempts for a quick recovery were unsuccessful, and we resorted to restoring the entire database from a tape backup system," Fisher said.

Fisher wouldn't confirm whether the agency had an au-

tomated recovery system, such as Oracle Corp.'s Parallel Server, in place. The system is reportedly built on an eight-CPU Silicon Graphics Inc. server running the SGI Irix operating system and Release 7.3.3 of the Oracle database.

The database, maintained in the agency's Clarksburg, W.Va., facility, failed at 1 p.m. Thursday, May 11, and didn't return to service until 7:30 a.m. Sunday, May 14. During that time, no background checks could be started, halting gun sales na-

tionwide. Also, the FBI couldn't finish the checks that were already in progress, freeing merchants to complete those handgun sales at their own discretion, according to Fisher.

The FBI is required to complete a check within three days; if it fails to do so, a merchant is free to go ahead with the sale.

By press time, the FBI hadn't confirmed the number of pending background checks that may have resulted in gun sales, but sources said it's probable that some criminals were able to buy guns during the outage.

Not a First

It wouldn't be the first time the database failed in its role of preventing gun sales to unqualified buyers. NICS checks not completed within the three-day period have resulted in more than 2,500 gun sales to criminals, according to a report published by the General Accounting Office (GAO) last month. That's because the database accesses multiple sources of information (see "The NICS at a Glance").

The GAO Reports:

The FBI has performed 4.4 million NICS background checks since November 1999. Of those checks, 72% were finished within 30 minutes. Of the remaining 28%, 88% were resolved within two hours, and 69% were unresolved for 24 days.

The NICS At a Glance

What is it? The NICS was created by a provision of the Brady Law, which makes federal background checks a prerequisite for firearm purchases, to prevent merchants from selling handguns or rifles to people with criminal records.

Who's in it? The NICS maintains information on approximately 15 million people. Sources include the National Criminal Information Center database, which contains information on approximately 800,000 people; the Interstate Identification Index, a repository of about 30 million criminal records; and data from the Department of Defense, the State Department and other agencies. —Christine McGeever

Oracle representatives declined to comment, noting that many elements can cause such failures in complex systems.

Analyst Teri Palanza at Giga Information Group Inc. in Cambridge, Mass., agreed that the NICS probably has multiple points of potential failure, including the level of staff training. A vendor, she said, "can offer as much as possible to a customer, but you can't control how to take advantage of it." ■

New Companies Sign \$1.5B Outsourcing Deals With IBM

Spin-offs, merged firms seek IT help

BY JULIENNA DASH

According to analysts, newly formed companies are increasingly outsourcing their information technology operations—a development that yielded two 10-year, \$1.5 billion contracts for IBM last week.

Under an agreement with Aventis SA, IBM Global Services will manage mainframe computers and provide maintenance support for desktops and servers, as well as help desk and Internet operations. IBM will also support the Strasbourg, France-based pharmaceutical

and life sciences firm's IT infrastructure with telecommunications and network services.

IBM also signed a deal to provide Web hosting and infrastructure services to The New Power Co., a nationwide energy provider launched last week by Houston-based Enron Corp. IBM and Dallas, Va.-based America Online Inc. joined Enron to finance the company, with the three players anteing up a total of \$120 million as an initial investment.

Bruce Caldwell, a senior analyst at Dataquest in San Jose, said the agreements reflect a trend among new companies to select outsourcing firms to supply technology services.

"The hottest thing in out-

sourcing is getting outsourcers involved in the development of new companies," said Caldwell. While start-ups have typically led the pack in the past, IBM's recent outsourcing agreements indicate that spin-offs and newly merged companies are jumping on the bandwagon, he said.

Focusing Resources

In Aventis' case, the agreement will "help IT managers concentrate on e-business, because they don't have to take care of IT infrastructure management," said Carsten Tilger, an Aventis spokesman. "This will help focus our resources in a better way."

Aventis, which had sales of almost \$20 billion last year, employs 95,000 people in more than 120 countries. The company was formed late last year from the merger of Hoechst AG and Rhône-Boulogne SA.

Initially, IBM will service

Aventis operations in the U.S., France, Germany, Japan and the U.K. Aventis has yet to determine how many additional countries will receive outsourcing services, but Tilger said service-level agreements will be determined on a country-by-country basis.

Albert Nekimkin, a senior analyst at Inet, an IT research firm in Vienna, Va., said the merger was likely a key factor in Aventis' decision to outsource to IBM. After a merger, "it's a challenge to consolidate IT operations. A neutral way to solve the problem is to outsource," he said.

Nekimkin added that as in the U.S., European companies are experiencing an IT labor shortage, and labor laws make it tough for companies there to transfer workers across national borders. Hiring an outsourcer would afford Aventis greater flexibility in how it employs labor, Nekimkin said. ■

Unicenter Helps 1-800-FLOWERS.COM Blossom.



1-800-flowers.com has been the industry leader in online flower ordering since its inception in 1994. In 1997, Unicenter TNG was selected to help 1-800-flowers.com improve its online performance and increase its sales.

Unicenter TNG made the architecture and implemented the 1-800-FLOWERS.COM website, database, and content management systems, enabling them to fully drive the site.

With a new and redesigned website, 1-800-flowers.com has driven a 100% increase in online sales. The new website has been a huge success story for 1-800-flowers.com, and Unicenter TNG is proud to have been a part of it.

performance. From the front-end user interface to the back-end database, Unicenter TNG has been instrumental in the success of 1-800-flowers.com. For more information, visit us at internetsolutions.cai.com.

**COMPUTER
ASSOCIATES**

Unicenter TNG

Users Upset at New Rules For Windows Certification

Claim MCSE program changes being used to muscle them into Win 2k migration

BY DOMINIQUE DECKMANN
AND JULIENNA DASH

SOME CORPORATE information technology executives are grumbling that Microsoft Corp. has revamped its certification program to force companies to migrate to Windows 2000.

Under the new rules, people who hold Microsoft Certified

Systems Engineer (MCSE) certification must pass exams on Windows 2000 by Dec. 31, 2001, or lose their certification.

What's more, Microsoft is "retiring" all Windows NT 4.0 exams at the end of this year. This means that, seven months from now, it will be impossible to obtain MCSE certification without training on Windows 2000.

That's too soon, said Deb Mukherjee, CIO at Farmers Group Inc. in Los Angeles. He said there simply is no time for companies to start rolling out Windows 2000, gain enough experience with it and then have staff pass the new tests before the end of next year.

And what happens when a client insists that an IT staffing firm supply an engineer certified in NT 4.0? Bill Pfannenstiel, a vice president at Manpower Professional, a unit of Manpower Inc. in Milwaukee, said that in such a situation he would have to explain that there is no way the individual can be certified because Microsoft has retired the exam.

"Microsoft should provide an easier transition from NT 4.0 to Win 2k than just chopping NT 4.0 training off altogether," said David Lichtenhan, a managing director at Charles Schwab & Co.

NT 4.0 Training Still Available

Donna Senko, certification and skills and assessment director at Microsoft, points out that NT 4.0 courses will still be offered by training companies as long as there is demand — they just won't lead to a Microsoft-backed certification anymore, Senko said. Mi-

crosoft is simply trying to increase the value of MCSEs — a goal that executives like Mukherjee say they applaud.

Senko also denied that Microsoft is trying to force customers to migrate.

A Nuisance

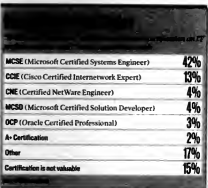
If a company is just migrating to Win 2k on desktops, recertification is "probably more of a nuisance rather than useful," said Barbara Gomolski, research director at Gartner Institute Inc. in Eden Prairie, Minn. She said she doesn't think NT 4.0 will be antiquated knowledge. "A lot of compa-

nies that don't deploy server-based features of Windows 2000 will still be running [these platforms] for a while," she said.

Mike Vaughn, an information systems specialist at KASA-TV in Albuquerque, N.M., said he suspects that the early expiration of the NT 4.0 MCSE program "has a lot to do with marketing."

"I think [the MCSE program] is a push for companies to upgrade, but I and my company will go into [Windows 2000] when we are ready," said Vaughn.

"As long as Microsoft is making money [selling] a product, it shouldn't be considered 'retired,' said Doug Chick, an MCSE who obtained his certification in 1997. He said the market — not Microsoft's marketing department — should dictate when certain technical skills are outdated. ■



Microsoft, DOJ to Appear Before Judge This Week

BY PATRICIA THIBODEAU

Microsoft Corp.'s remedy plan won't have any effect last week from the government, which called the self-imposed restrictions "cosmetic" and incapable of undoing the harm caused by the company's business practices, in the latest brief filed in federal court. But the real battle begins this week, when both sides appear before U.S. District Judge Thomas Penfield Jackson to begin oral arguments over remedies.

Jackson, who has ruled that Microsoft violated antitrust law, set Wednesday as the first hearing date in the remedy process. Microsoft wants delays in order to prepare witnesses and evidence to reject the government's proposed breakup of the company, separating its applications from its operating systems business.

Microsoft says it needs months to defend itself; the government wants the remedy phase wrapped up in a matter of weeks. Jackson may decide that issue this week.

For the most part, end users don't support the government's plan to split Microsoft into two companies, according

to a Computerworld poll of information technology professionals.

Only 23% of those surveyed last week favored the government's proposal to separate Microsoft's operating system business from its applications business, while 48% favored Microsoft's countermeasures, according to a survey of 104 IT managers at companies of more than 500 employees. The remainder were split among a variety of other options.

Sam Glick, information systems director at Foster Electric America Inc., a Schaumburg, Ill.-based manufacturer of speakers for automobiles, is among those who support a breakup.

"Just putting restrictions on how you do things leaves too many holes — who is going to police it?" said Glick.

Microsoft has offered to release technical information and interfaces to independent developers in a timely manner, as well as to allow PC makers to make a non-Microsoft browser the default browser. It would also make older versions of Windows available at no increase in royalties. ■

Win 2k Service Pack Beta: No Major Bugs

Release could open gates for adoption

BY DOMINIQUE DECKMANN

Windows 2000's slow rollout may get a boost from the release of its first service pack.

Service Pack 1 (SP1) is expected to be released this summer, but a beta version has been posted on Microsoft Corp.'s developers-only MSDN Web site. SP1 fixes "some IP stack issues, some security issues, some memory leaks — nothing earth-shattering," said William Hurley, an

analyst at The Yankee Group in Boston. "That increases confidence," he said, because it shows that no major bugs have emerged since the operating system's launch in February.

But some users say they are still in no hurry to roll out Windows 2000. "SP1 is a good first step, but it will probably be another year until we move our servers or workstations," said Brad Vonkaesfeld, supervisor of network services at Solar Optical USA in Presidio, Calif. "I don't see the justification right now."

SP1 is an important psychological milestone, said Steve

Kleynhans, an analyst at Meta Group Inc. in Toronto. "Everybody has been saying, 'Don't install Windows 2000 before the service pack,'" he said. With SP1, Kleynhans said he expects an uptick in Windows 2000 adoption around August.

"I think this will open the door for a lot of people to implement Windows 2000," agreed Tony Lams, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. ■

MORE ONLINE

For more resources related to Windows 2000 visit our Web site: www.computerworld.com/news

Users Upset at New Rules For Windows Certification

Claim MCSE program changes being used to muscle them into Win 2k migration

BY DOMINIQUE ORCHENTH
AND ALEXANDRA DASH

SOME CORPORATE information technology executives are grumbling that Microsoft Corp. has revamped its certification program to force companies to migrate to Windows 2000.

Under the new rules, people who hold Microsoft Certified

Systems Engineer (MCSE) certification must pass exams on Windows 2000 by Dec. 31, 2000, or lose their certification. What's more, Microsoft is "retiring" all Windows NT 4.0 exams at the end of this year. This means that, seven months from now, it will be impossible to obtain MCSE certification without training on Windows 2000.

That's too soon, said Deb Mukherjee, CIO at Farmers Group Inc. in Los Angeles. He said there simply is no time for companies to start rolling out Windows 2000, gain enough experience with it and then have staff pass the new tests before the end of next year.

And what happens when a client insists that an IT staffing firm supply an engineer certified in NT 4.0? Bill Plannenstiel, a vice president at Manpower Professional, a unit of Manpower Inc. in Milwaukee, said that in such a situation he would have to explain that there is no way the individual can be certified because Microsoft has retired the exam.

"Microsoft should provide an easier transition from NT 4.0 to Win 2k than just chopping NT 4.0 training off altogether," said David Lichtenhan, a managing director at Charles Schwab & Co.

NT 4.0 Training Still Available

Donna Senko, certification and skills and assessment director at Microsoft, points out that NT 4.0 courses will still be offered by training companies as long as there is demand — they just won't lead to a Microsoft-backed certification anymore, Senko said. Mi-

crosoft is simply trying to increase the value of MCSE — a goal that executives like Mukherjee say they applaud.

Senko also denied that Microsoft is trying to force customers to migrate.

A Nuissance

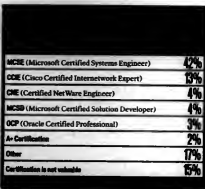
If a company is just migrating to Win 2k on desktops, recertification is "probably more of a nuisance rather than useful," said Barbara Gornolok, research director at Gartner Institute Inc. in Eden Prairie, Minn. She said she doesn't think NT 4.0 will be antiquated knowledge. "A lot of compa-

nies that don't deploy server-based features of Windows 2000 will still be running [these platforms] for a while," she said.

Mike Vaughn, an information systems specialist at KASA TV in Albuquerque, N.M., said he suspects that the early expiration of the NT 4.0 MCSE program "has a lot to do with marketing."

"I think [the MCSE program] is a push for companies to upgrade, but I and my company will go into [Windows 2000] when we are ready," said Vaughn.

"As long as Microsoft is making money [selling] a product, it shouldn't be considered 'retired,' said Doug Chick, an MCSE who obtained his certification in 1997. He said the market — not Microsoft's marketing department — should dictate when certain technical skills are outmoded. ▀



Microsoft, DOJ to Appear Before Judge This Week

BY PATRICK THORNDOM

Microsoft Corp.'s remedy plan won't have any respect last week from the government, which called the self-imposed restrictions "cosmetic" and incapable of undoing the harm caused by the company's business practices, in the latest brief filed in federal court. But the real battle begins this week, when both sides appear before U.S. District Judge Thomas Penfield Jackson to begin oral arguments over remedies.

Jackson, who has ruled that Microsoft violated antitrust law, set Wednesday as the first hearing date in the remedy process. Microsoft wants delays in order to prepare witnesses and evidence to reject the government's proposed breakup of the company, separating its applications from its operating systems business.

Microsoft says it needs months to defend itself; the government wants the remedy phase wrapped up in a matter of weeks. Jackson may decide that issue this week.

For the most part, end users don't support the government's plan to split Microsoft into two companies, according

to a Computerworld poll of information technology professionals.

Only 23% of those surveyed last week favored the government's proposal to separate Microsoft's operating system business from its applications business, while 48% favored Microsoft's counterproposal, according to a survey of 104 IT managers at companies of more than 500 employees. The remainder were split among a variety of other options.

Sam Gius, information systems director at Foster Electric America Inc., a Schaumburg, Ill.-based manufacturer of speakers for automobiles, is among those who support a breakup.

"Just putting restrictions on how you do things leaves too many holes — who is going to police it?" said Gius.

Microsoft has offered to release technical information and interfaces to independent developers in a timely manner, as well as to allow PC makers to make a non-Microsoft browser the default browser. It would also make older versions of Windows available at no increase in royalties. ▀

Win 2k Service Pack Beta: No Major Bugs

Release could open gates for adoption

BY DOMINIQUE ORCHENTH

Windows 2000's slow takeoff may get a boost from the release of its first service pack.

Service Pack 1 (SP1) is expected to be released this summer, but a beta version has been posted on Microsoft Corp.'s developers-only MSDN Web site. SP1 fixes "some IP stack issues, some security issues, some memory leaks — nothing earth-shattering," said William Hurley, an

analyst at The Yankee Group in Boston. "That increases confidence," he said, because it shows that no major bugs have emerged since the operating system's launch in February.

But some users said they are still in no hurry to roll out Windows 2000. "SP1 is a good first step, but it will probably be another year until we move our servers or workstations," said Brad VonKaesfeld, supervisor of network services at Sola Optical USA in Petaluma, Calif. "I don't see the justification right now."

SP1 is an important psychological milestone, said Steve

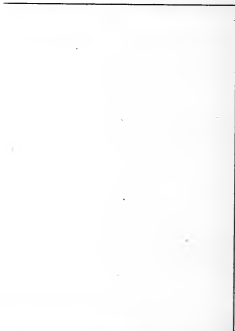
Kleynhans, an analyst at Meta Group Inc. in Toronto. "Everybody has been saying, 'Don't install Windows 2000 before the service pack,'" he said. With SP1, Kleynhans said he expects an uptick in Windows 2000 adoption around August.

"I think this will open the door for a lot of people to implement Windows 2000," agreed Tony Iams, an analyst at D.H. Brown Associates Inc. in Fort Chester, N.Y. ▀

MORE ONLINE

For more resources related to Windows 2000, visit our Web site: www.computerworld.com/news

**96% of the
FORTUNE e-50[™]
run Oracle.**



Now tell us again
where the business
Internet begins?

ORACLE
SOFTWARE POWERS THE INTERNET

© 1998 Oracle Corporation. All rights reserved. Oracle and Software Powers the Internet are registered trademarks of Oracle Corporation. Other names may be trademarks of their respective owners.

www.oracle.com

BRIEFS

High-Tech Workers Richer, More Plentiful

The U.S. high-tech workforce surged to 5 million last year from 3.8 million in 1998. California, Texas, Virginia, Colorado and Georgia led the nation, according to a study by the American Electronics Association and Nasdaq Stock Market Inc. The annual average high-tech salary was \$38,000 in 1999, compared with \$32,000 in the rest of the private sector.

Digital Signature Plan

U.S. House and Senate Republicans circulated a compromise draft proposal of digital-signature legislation that has a number of legislative carve-outs. It would require companies to continue providing paper-based notices to consumers on such things as termination of health care and life-insurance benefits, loan defaults and health insurance benefits.

Microsoft Pins NGWS Date

Microsoft Corp. will outline Next Generation Windows Services (NGWS), its vision of software as a service, at the Forum 2000 event in Redmond, Wash., next week. NGWS will build on existing Microsoft technologies to offer Internet-based services to multiple client platforms.

New Novell Tool

At Brainium Europe 2000 in Nice, France, Novell Inc. introduced an XML-based technology that will ship as a part of its GroupWise collaboration software later this year. XML Integration Services will provide the basis for corporate portals.

Nasdaq Plan Attacked

The Securities Industry Association (SIA) has called "ill-advised" a proposal that would allow the Nasdaq stock market to continue to list its securities in fractions while the rest of the industry converts to decimals. The SIA expressed support for another plan, which calls for 30 or fewer securities to begin trading in decimals Sept. 4, with the rest of the conversion to happen later.

Wary Inprise Jilts Corel

Developers happy; Corel seeks financing

BY KATHLEEN OHLSON AND LEE COPPELAND

THE COLLAPSE last week of the merger pact between Corel Corp. and Inprise Corp. left Corel without a much-needed source of funding and Inprise with a lot of elated Windows application developers and programmers.

Angelo Serra, enterprise application developer at the Ohio Department of Transportation in Columbus, said the merger wasn't viewed favorably by the developer community.

"Corel is a sinking ship, and [developers] wondered why Inprise was tying itself to the wrong company," given Corel's financial woes and the lack of product synergy, said Serra, who uses Builder and Delphi tools from Inprise.

Ottawa-based Corel's focus is on the Linux operating system, while Scotts Valley, Calif.-based Inprise's customers are Windows shops.

The proposed merger has been on shaky ground since it was announced Feb. 7. Corel had potentially snagged Inprise for \$2.44 billion in stock, but the value dropped as Corel's stock plummeted on the heels of its \$12.4 million first-quarter loss and expectations of future losses.

Inprise asked Fort Lee, N.J.-based financial adviser Broadview International LLC to re-evaluate the merger's "fairness" last month. Corel warned that it would run out of funds by July if the deal fell through and left it unable to rely on Inprise's coffers.

Analysts said Inprise was left with no choice but to end the merger.

Most such deals last year worked because the companies' products were complementary, said Rikki Kirzner, an analyst at International Data Corp. in Mountain View, Calif. For example, Sun Microsystems Inc. last August bought Forte Software Inc., a maker of

development tools in Oakland, Calif., to expand its development offerings. "It was like trying to put a square peg into a round hole for [Corel and Inprise]," Kirzner said.

Now that Inprise is free of Corel, some analysts and users say Inprise will accelerate development of its wares. Serra said Inprise expanded its beta offerings to its department, but he declined to be specific.

However, Carl Zetie, an analyst at Giga Information Group Inc. in Santa Clara, Calif., said Inprise is on its last legs. "It took a full-court press to publicize itself as a Linux vendor, and now [Inprise] has a credibility problem," Zetie said. "What will it say now? What? We're kidding around." He predicted Inprise will sell itself off in parts.

But several Inprise users insisted the firm will survive. "I have no intention of switching from the best Java development tool on the market," said Ben Manerion, a Builder developer at OpenAvenue Inc., an open source code online development firm in Scotts Valley. ■

Crisis at Corel?

When Corel's proposed merger with Inprise collapsed last week, the company might have lost its lifeline.

"Corel is clearly in a cash crisis," said Carl Zetie, an analyst at Giga Information Group in Santa Clara, Calif.

He cited circumstances stemming from a poor financial outlook and Linux products that the \$66-million company shares with those of real Red Hat Inc. in Durham, N.C.

The decision to terminate the merger was "mutual" due to "significant changes" over the past three months, said Corel CEO Michael Cowland. Corel Chief Financial Officer John Blaine said the company is looking at alternative financing offers, but he repeatedly declined to elaborate.

David Wright, an analyst at S&P/Moody's Inc. in Toronto, said he doubts Corel will find more financing but added that it will at least save money if it sells off unsuccessful product lines, including its Linux products, or if it sells its shares in GraphOn Corp. in Morgan Hill, Calif.

— Kathleen Ohlson

Chase Sues Mortgage Vendor for \$20M-plus

BY MARIA TROMLEY

Yet another suit has been filed against online mortgage technology provider Mynd Corp. This time, customer Chase Manhattan Mortgage Corp. is suing the embattled Columbia, S.C., vendor for more than \$20 million, claiming that Mynd's mortgage software was late and didn't perform as promised.

Mynd, formerly known as Policy Management Systems Corp. (PMSIC), has been sued by both shareholders and competitors this year. The shareholders accused the firm of inflating its numbers, and competitors charged it with stealing trade secrets.

Officials at New York-based Chase declined to comment on the suit. But Mynd Executive Vice President Stephen Morrison said the companies are trying to reach an "amicable resolution of our differences."

For Chase, the problems lie

with Mynd's LoanXchange System, a client/server mortgage origination package developed by Mynd subsidiary Cybertek. According to the Chase lawsuit filed in February in U.S. District Court in Texas, the software was delivered late, wasn't up to specifications and simply didn't work.

"The big lesson here is, don't

overpromise and underperform," said Jamie Punishill, an analyst at Cambridge, Mass.-based Forester Research Inc.

But analyst Richard Biedle at Needham, Mass.-based Town Group said major lenders like Chase might be exacerbating the mortgage origination process by trying to electronically link customers to third parties

such as appraisers, title agencies and mortgage insurers.

On a more positive note, Mynd's operating losses improved from \$70 million in the fourth quarter last year to \$36 million in the first quarter this year, the company announced last week. The company attributed its slight improvement to its first-quarter loss to customer dispute and litigation costs and another \$76 million to restructuring costs arising from reductions in staff.

Mynd's financial problems follow other legal challenges.

On Jan. 13, Computer Sciences Corp. filed suit against PMSIC. PMSIC's predecessor, alleging it misappropriated trade secrets. On Jan. 7, PMSIC said it wouldn't meet analysts' estimates for the final three months of last year. Three shareholders' lawsuits have since been filed.

In an ironic twist, Mynd last week announced seminars it plans to run with Microsoft Corp. focused on Mynd's LitigationAdvisor software for managing litigation. ■

Mynd Mired in a Sea of Suits

January: Computer Science Corp. in St. Petersburg, Calif., files suit alleging misappropriation of trade secrets.

Shareholders sue, claiming the software developer misled investors about the company's financial prospects.

February: Chase Manhattan Mortgage Corp. files lawsuit alleging that the company's software was late, didn't meet specifications and didn't work.

March: More shareholders sue, again about a proposal to sell Mynd to New York-based investment firm Dutch Capital Anderson & Stowe for \$14 per share — compared with a 30-week high of \$40 per share. Last Monday, Electronic Data Systems Corp., which owns a controlling stake, sold \$20 to \$30 per share after taking a closer look at the company.

Concord's eHealth. Because you never know where the next threat to your e-business will come from.

► end-user service demand surge

It's crazy out there. But here's how to keep your mental health. Concord's eHealth solution will.

Building on the success of our Network Health product, Concord's eHealth consists of fully integrated best-of-breed products that measure, monitor, and proactively manage potential threats to your e-business. eHealth modules for Application

System and Networks provide early and detailed alerts, scales easily to meet ever-changing business needs, and quickly integrates into your existing technology infrastructure.

There's danger on every step of the road way to a successful e-business.

Get all the help you can. Concord's eHealth.

► whirlwind availability requirements

► huge obstacles to peak network performance

► shocking drop in application response

Find out more at www.concord.com
or call 800-851-8722

 **CONCORD**
eHealth

Voice Recognition Eases Call-In Trading

BY MARIA TROMBLY

DLdirect Inc. last week became the latest online brokerage to jump on the voice-recog-

niton bandwagon. The company signed a deal with Boston-based SpeechWorks International Inc., one of the two

major software players in voice recognition.

DLdirect, a subsidiary of Donaldson, Lufkin & Jenrette

Inc. in New York, plans to roll out within the next few months an interactive voice response system to replace the existing "press 1 to buy a stock" system with a self-learning, natural-language capability, said DL-

direct CIO Suresh Kumar.

The system will let a buyer call and say, "I want to buy 100 shares of company stock." The software will repeat the order and process the transaction. Customers can already place trades, get account data and look up market information by phone through a series of menu prompts.

"The new system will do exactly the same thing, except that you won't have to go through complex menus using the touch-tone telephone," Kumar said. "It'll make it a lot easier than what we have today."

A Good Match

Brokerage services are a perfect fit for voice-recognition technology, said Stuart Patterson, president and CEO of SpeechWorks. People buying and selling stock use a vocabulary too varied for easy access through menus and touch pads but small enough for software to process in real time, he said.

Other brokerages — including Charles Schwab & Co., Fidelity Investments and TD Waterhouse Group Inc. — also offer voice-recognition features, though their vendor is Nuance Communications in Menlo Park, Calif.

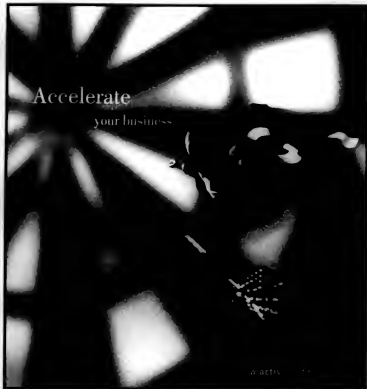
At DLdirect, Kumar said the number of calls routed to the customer service department should drop from a quarter of all calls to less than one-tenth once the new voice features are added. That is desirable to brokerages because market volatility means that the call centers are often either overstaffed or understaffed.

Within the next few years, voice recognition is expected to spread to all automated phone answering systems, said Bill Hills, an analyst at Boston-based Aberdeen Group Inc. The main holdup is price and ease of installation — and the major vendors are working on both of these issues, Hills said.

The installation of a SpeechWorks system can take as little as three weeks, said Patterson.

"If there's a Web site, the whole process is generally speaking, easier," he said. "We can reuse 80% to 90% of that infrastructure. But even connecting to the back end, if it's one simple order status check, can also be quick."

Pricing ranges from \$100,000 to millions of dollars, he added, but prepackaged systems run as little as \$40,000. ■



Active
SOFTWARE

Business Integration
at the Speed of Change.

→ To be successful in the new network economy you've got to take quick aim. Active Software can help you reach your target by automating end-to-end business processes between you and your B2B trading partners. No matter what systems or applications you're using. More than 200 of the world's leading organizations rely on Active Software's ebusiness solutions to speed up their business. They've accelerated time to market, increased revenue. And improved customer service. Isn't it time your business became part of the network economy?



FREE! White paper: B2B Integration for the New Network Economy

Learn how to expand your B2B opportunities by visiting

www.activesoftware.com/accelerate or call 888-253-4463 or 408-968-0444

**RACK 'EM.
STACK 'EM.
AND START
KICKING
SOME ASS.**



What are you waiting for? Get our new, scalable, high-performance server appliances that are only 1U high, built with lights-out remote management and pre-configured so you can just plug them in and go. Because the Internet's a kick or be kicked world and, frankly, which would you prefer? 877-865-1161

©2000 Network Engines



networkengines

www.networkengines.com

FTC Privacy Panel Fails to Meet Charter

Group finds little consensus on online data access issues, offers up only options

BY PATRICK THIBODEAU

A GOVERNMENT panel charged with sorting out politically sensitive online privacy and access issues fell victim to the controversy last week when it failed to offer policy makers any advice.

The Federal Trade Commission (FTC) formed the Advisory Committee on Online Access and Security to offer recommendations on contentious privacy problems, such as how much access consumers should be given to information that businesses collect about

them via the Internet.

Instead, the 42-member committee of business representatives, privacy experts and industry groups outlined a series of controversial options, ranging from giving consumers total access to the information gathered about them to more limited access.

Businesses on the committee argued that giving consumers total access to online data about them would increase Web site design, storage and legal costs. Proponents said it would provide uniformity and predictability.

"It was going to be difficult

Access Options

A Federal Trade Commission committee examining online access issues couldn't agree on how much access companies should give consumers. Instead, it considered options like:

Total access option
No personal information would remain off-line, and the initial access would be free. However, businesses could charge for repetitive requests.

Access for correction option
Consumers would get access to data only for the purpose of correcting it.

to come to any consensus," said committee member Richard Bates, vice president of

government relations at The Walt Disney Co. in Burbank, Calif., citing the diversity on the panel. But Bates said he believes the committee's report will play a useful role in the privacy debate.

"What we were able to do was define the issues and different choices that need to be reviewed," Bates said.

Rick Lane, director of congressional and public affairs at the U.S. Chamber of Commerce and a committee member, said the advisory committee report will help industry self-regulation advocates.

"I think what this report shows overall is that the issues we are struggling with are very complex and moving very quickly," Lane said. "And from our perspective, we see that as a perfect reason why there should not be legislation."

Andrew Shen, a policy analyst at the Washington-based Electronic Privacy Information Center and a committee member who favors regula-

tion, said the main problem in reaching consensus is that for some online companies, collecting information about consumers is their main business.

"A lot of Web sites just don't want to provide consumers with full access — it's just a product of how information-intensive a lot of these Internet companies are," Shen said.

In a related development, the FTC is expected this week to release another report that may influence the privacy debate: its annual survey of privacy practices of commercial Web sites. If the FTC isn't happy with the findings, it could recommend more stringent privacy regulations. ■

Study Seen As Stalling Privacy Laws

BY PATRICK THIBODEAU

A plan in the House of Representatives to create a congressional commission to study privacy is seen by its opponents — including the Clinton administration — as a way to put the brakes on any privacy-related legislation.

Congress is considering legislation by Reps. Asa Hutchinson (R-Ark.) and Jim Moran (D-Va.) to create a 17-member group that would get \$2.5 million and 18 months to take a comprehensive look at privacy issues. The bill is called the Privacy Commission Act.

But John Spottis, an official at the White House Office of Management and Budget, testifying last week before a House subcommittee, said the commission is being supported by those who "would prefer to have Congress study this issue rather than take action."

"The commission might be a reason for people not to take action on financial privacy legislation, which we think is clearly needed," Spottis told the House Subcommittee on Government Management, Information and Technology.

Subcommittee Chairman Stephen Horn (R-Calif.) said the commission might be useful in bringing consensus. ■

House Votes No on ISP Access Charges

Legislation excludes Internet telephony

BY JAMES COPE

Lenny Grey, president of Raven-Villages Internet, a small Internet service provider in Romney, W. Va., thought testifying in front of the House Commerce Committee hearing on HR 1291 was a good idea. That is, he thought so until May 10.

That's when the Commerce Committee clarified that Internet telephony (voice calls via the Internet) is excluded from the legislation designed to limit the Federal Communications Commission's (FCC) powers to impose local access charges on Internet providers.

The full House approved the measure Tuesday. Grey said he's unsure how the bill may ultimately affect his business, which provides Internet telephony and other Web-based services.

Local access charges, which some confuse with taxation on goods purchased online, are per-minute fees paid by long-distance providers to the re-

gional Bell operating companies in return for connections to the regional loops. Bell-South Corp. in Atlanta said it's paid an average of 2 cents per minute. The fees are placed in a universal access fund to help offset local service costs for low-income consumers.

Rep. Fred Upton (R-Mich.) introduced HR 1291 last year. An Upton spokesman said the bill wasn't intended to keep the FCC from regulating access charges on voice calls via the Net. In a prepared statement, Upton said it was an effort to prevent future regulation by

the FCC that might result in per-minute access charges.

But Rep. Edward Markey (D-Mass.) said, "The prohibition contained in the bill actually prohibits very little. And [it] gives the FCC a big legislative wink at access charges to Internet telephony providers."

Moreover, Markey said, it only prohibits access charges for universal service, which means the FCC could still levy per-minute Internet access charges as long as the funds derived aren't earmarked for the universal fund. Markey's attempt at an amendment to resolve his concerns failed when the house approved HR 1291.

Committee Confused

Grey said the Commerce Committee members seemed confused about the Internet telephony issue. "The Internet is all data, including telephony," Grey said. He said Rep. Christopher Cox (R-Calif.) is a committee member who seemed to understand this. Others on the panel, he said, seemed more interested in sorting out how "the whole long-distance market could unravel



REP. FRED UPTON said he introduced HR 1291 to prevent per-minute Internet access charges.

We know a service provider that sends
50 megabyte multimedia files around the world.

In seconds

Sorry fellas



Welcome to the New World.

A world full of stories just like this one. Stories of Cisco Powered Network™ service providers delivering innovative business solutions. To be matched with a service provider partner who can reliably extend your network over a Cisco-based infrastructure, visit our site at www.cisco.com/go/cpn.

CISCO SYSTEMS



EMPOWERING THE
INTERNET GENERATION™

BRIEFS

Clusem Launches Voice/Video ASP App

The first voice and video application service provider (ASP) will debut today when Clusem Telemedia Inc. in Hudson, N.J., launches its i² ASP-based application. The company said it will target organizations seeking online voice and video services for online training and professional services, as well as business-to-consumer operations.

Network Storage Market Growing

The worldwide network storage market, which includes network-attached storage and storage-area networks, will reach more than \$10 billion in end-user sales for 2004, according to Calomix to Stat Group. The Scottsdale, Ariz.-based research firm said the market will reach nearly \$2 billion this year.

Dynamic Pricing

PriceonomicsCorporation in New York and Bld.com International Inc. in Toronto announced that they will collaborate on North American sales and implementations of Bld.com's dynamic pricing technology for business-to-business and business-to-consumer Web sites.

MoveNet Moves To Emptoris

MoveNet.com LLC, an Internet business-to-business marketplace for relocation services in New York, will implement new configuration software from Emptoris Inc. in Burlington, Mass. The software will let MoveNet's business-to-business customers extend online pricing when buying services. Emptoris' eProc software lets buyers and sellers customize parameters for online sourcing of goods and services.

Profit and Loss

San Jose-based Brocade Communications Systems Inc. turned a profit for the second quarter of fiscal 2000, reporting \$13.3 million, compared with a loss of \$900,000 for the same period last year.

IBM to Provide Formal Mainframe Support for Linux

Analysts: S/390 licensing schemes, novelty of operating system may slow adoption

BY ANKUMAR VIJAYAN

IBM'S MOVE to formally support Linux on the S/390 mainframe gives users an industrial-strength platform for running applications based on the open-source operating system, analysts and users said.

But the traditional capacity-based licensing schemes associated with mainframe software, along with Linux's immaturity in enterprise environments, could slow the take-up, they added.

"It is an extremely interesting move because the S/390 offers a range of possibilities that doesn't exist on other platforms," said Dan Kaberon, parallel systems manager at Hewlett Associates LLC in Lincolnshire, Ill., one of the nation's largest outsourcers of corporate benefits packages.

But "it will be more effective for users to put [Linux applications] on cheaper RISC-based processors than on a mainframe until IBM can fix its current software pricing scheme," said Carl Greiner, an analyst at Metrix Group Inc. in Stamford, Conn.

Under capacity-based pricing schemes, users pay for software according to the size of the system it's running on—generally the larger the system, the more costly it is to run software.

"We have an offer that enables customers to develop and run Linux applications in a dedicated workspace without impacting their current S/390 software charges," said an IBM spokesman.

IBM last week said it will offer a full range of support services for Linux on the S/390.

Under the initiative, Linux for S/390 will be sold by Nürnberg, Germany-based SuSE Inc. and TurboLinux Inc. in San Francisco, both of which are Linux vendors.

IBM Global Services, the company's professional ser-

vices unit, will work in collaboration with SuSE and TurboLinux to offer technical support and middleware integration services.

Last week's announcement formalizes Linux support on S/390 systems. IBM has been making free Linux code available on the mainframe platform since January, but users who take the free software don't get service and support.

In its announcement, IBM said the fact that more than 2,100 mainframe users have downloaded the code since January prompted its decision to provide formal Linux service and support on the S/390.

The ability to run Linux jobs on mainframes, in proximity to traditional big-iron workloads

and databases, should make applications for the operating system easier to manage and increase their scalability and performance, said Mike Kahn, an analyst at The Clipper Group Inc. in Wellesley, Mass.

One example is OS/390's VM/ESA guest support, under which users can run "thousands of Linux virtual machines on a single piece of hardware," Kaberon said.

But Linux still isn't as robust as other Unix versions—such as IBM's AIX, Sun Microsystems Inc.'s Solaris or Hewlett-Packard Co.'s HP-UX—which will limit user interest in running Linux on mainframes, Greiner said.

"It may or may not be useful in 2002," agreed Kaberon. "But it is going to become more and more useful over the next several years... We are just going to watch this very carefully."

IBM is planning a lineup of

mainframe software for Linux that includes middleware, databases and management software (see chart). Most of the software will become available in the fourth quarter. ■

Linux in the Glass House

The planned lineup of IBM software supporting Linux includes the following:

- Connectors for linking Linux applications with OS/390 applications and data. The connectors will include DB2 Connect, IMS Connect and MQSeries Client for Java.
- DB2 Universal Database for Linux on S/390.
- IBM WebSphere Application Server with Java 2 support.
- A storage manager client for Linux on S/390, developed by IBM's Tivoli Systems unit, for automated data backup, archiving and disaster recovery services.

Outlook Virus Patch Touches Other Apps

Security/usability conflict emerges

BY ANN HARRISON

Microsoft Corp. last week announced that it will issue a patch for its popular Outlook e-mail client that's aimed at preventing the software from propagating viruses like the "I Love You" and "Melissa" bugs. Those viruses were spread recently via e-mail attachments or Internet worms that replicated through the Outlook address book.

The patch, which is now being analyzed by developers, could have a wide-ranging impact on third-party software designed to interoperate with Outlook.

The upcoming patch will prevent Outlook 2000 and Outlook 98 from receiving certain types of program files, such as exe and bat, that contain executable code used to spread viruses. Updated ver-

sions of Outlook will also block script modules and files such as .js, .dos and .vbs (Visual Basic Script) attachments.

The "I Love You" virus payload was a .vbs attachment. Internet links and shortcuts to files such as .lnk and .pif files will be restricted. "The goal is to take the guesswork out of determining whether an attachment is safe," said Lisa Gurry, a product manager on Microsoft's Office team.

Gurry confirmed that the virus patch will affect a number of business applications, including San Mateo, Calif.-based Siebel Systems Inc.'s customer relationship management applications and SAP AG's enterprise resource planning software.

But she said they and other software partners are just now receiving the beta code and that it's too early to know what the impact will be. "We will be inviting them to campus to discuss the right balance between security and functionality and

ensure that our products continue to work well with theirs," Gurry said.

Microsoft has acknowledged that the patch will affect certain functionalities within Outlook and the interaction of some third-party software with Office.

Some vendors—including Novell Inc., Palm Inc. and Perov Software Ltd.—are evaluating the effect on their products, according to Microsoft's beta download site.

A Departure

The development of the patch is a departure for Microsoft, which has often countered criticism of security weaknesses in its Office products by arguing that users want a range of automated features, even if they're vulnerable to attack.

A patch for all Outlook users, called the Microsoft Outlook 98/2000 E-mail Security Update, will be available this week. ■

i-business

Information Builders

www.informationbuilders.com/i-business

1.800.969.INFO

Continued from page 1

OnStar

matched to a profile the user stored, and content will be retrieved from an outside Web site that the Troy, Mich.-based GM subsidiary has partnered with. The XML-tagged data is then translated to Voice XML.

"For those who don't want a happy, smiley face at the other end of the phone, it really is an alternative platform," said OnStar CEO Bruce Radloff, noting that the company also hopes the automated system will help slow the increase in its call center advisers.

Since fall 1996, OnStar advisers have been offering directions, suggesting restaurants, finding gas stations and providing emergency services to subscribers who press a button that activates a cellular telephone call to a person.

As early as mid-1997, OnStar recognized that it didn't want to be in the business of aggregating all the content for its subscribers. So as staffers considered partnering with outside companies to get the information, they explored technical changes that would help deliver a wider range of content to the call center advisers.

"We weren't thinking about the car and the mobile devices," Radloff recalled. "It was just an attempt to standardize our data and standardize with the data of the other enterprises we wanted to pull data from."

That was no small order for a company accustomed to owning all of its data. Radloff said his biggest challenge was convincing upper management that an architectural shift was necessary and that it was important, in some cases, to use new and untested tools and technology.

A More Flexible System

OnStar eventually scrapped its proprietary client/server architecture in favor of a more flexible multitier system that relies on distributed objects. Part and parcel was separating the presentation layer from any content stored in its databases. Staffers spent eight months coding XML tags into the data and testing their work, according to Radloff.

"It was painful," he said.

Egbert-Jan Sol, vice president of technology at LM Ericsson in Stockholm, agreed. He said it will be hard work, and in some cases companies will have to completely redesign and rethink content to make it more suitable for small-screen devices.

Radloff said OnStar opted for XML to steer clear of the raging battles over competing application development models from Microsoft Corp. and Sun Microsystems Inc.

The irony is that the decision would later bring an unplanned bonus: the ability to more easily deliver content to cell phones, handhelds or any device they would like.

Now that it has pure XML content at the back end, OnStar won't have to make wholesale writes every time it wants to deliver content to a new device. Instead, the company's programmers write a



new XML style sheet to specify how the content should be delivered to the device.

Many experts and consultants at last week's World

Wide Web Conference recommended separating content from the presentation layer to prepare for delivering information to a range of devices.

Continued from page 1

Wireless LAN

arrived as a garage band, and then we'll move to 5 GHz," said Phil Belanger, vice president of wireless business development at Wayport Inc. in Austin, Texas, which plans to install wireless LAN networks in 20 airports this year.

Wireless LAN users — who enjoy speeds of 11M bit/sec.

and network connectivity without cables — share the 2.4-GHz frequency band not only with other wireless LAN users but also with other devices. These range from microwave ovens to cordless phones to short-range Bluetooth devices, designed to provide wireless connections between laptops and printers.

In addition, major network equipment vendors have developed wireless LAN products for home offices, pro-

viding mobility for laptops equipped with \$99 wireless LAN cards.

These and other developments are expected to drive 41% growth in the wireless LAN market over the next two years, peaking at 33.9 million units in 2002, according to Cahners In-Stat Group in Newton, Mass.

David Ziembicki, chief technology officer at Global Digital Media.com in Boston, which is installing wireless LANs in airports in Boston and Philadelphia, said his company has "concerns about interference" in the 2.4-GHz band.

He suggested that corporate information technology managers considering deployment of a wireless LAN "conduct a site survey like we do to determine existing sources of noise and frequency interference" and then work to alleviate as many of those as possible.

Brent Miller, a senior engineer at IBM's pervasive computing division in Research Triangle Park, N.C., said anyone planning to use 2.4-GHz wireless products "needs to account for interference," including static between Bluetooth and wireless LANs. But "under the worst of circumstances," he said, "performance degrades gracefully."

Jan Haugh, wireless product manager at Lucent Technologies Inc.'s Orlino division in

"The layered approach is nice and clean and allows for multipurposing," said Murray Maloney, a consultant and member of the conference committee. "Anybody who knows what they're doing is using this model."

Contacted in the U.S., Daryl Plummer, an analyst at Garner Group Inc. in Stamford, Conn., said, "If they've decided they're going to [deliver Web content to devices] as their strategy, 85% to 90% have committed to doing it the way GM is doing it. They've made a commitment to XML and XSL [Extensible Stylesheet Language]."

But Plummer added that most companies aren't using either yet. "Corporations have a few people who understand and are excited about it, but they haven't started to convert their content because they're waiting for products."

Utrecht, Netherlands, said wireless LAN manufacturers need to design systems "that can cope with microwave ovens.... They power on and off, and we have a way to make our packets smaller so they can squeeze between the pulses of the microwave." Interference from other devices operating in the 2.4-GHz band could cause a degradation in performance from 15% to 30%, said Haugh.

Mike Francini, director of the wireless LAN business unit at San Jose-based Cisco Systems Inc., recommended that corporate IT managers hire a radio frequency consultant before installing a wireless network; Cisco offers such consulting services as part of its wireless LAN offerings.

Adopting a "defensive" strategy before installation should help manage problems, Francini said.

Dewayne Hendricks, CEO of Dandini Group Inc. in Fremont, Calif., serves on a Federal Communications Commission advisory group that's looking into interference on the 2.4-GHz band.

Hendricks said he believes that crowding will become so severe within a short period of time that 2.4 GHz "will only work out of urban areas.... The FCC is getting complaints about interference, and this is a real issue today."

Surfing the Friendly Skies

At least three companies have started to deploy wireless LANs to provide high-speed (11M bit/sec.) Internet connectivity to business travelers who have equipped their laptops with 802 wireless LAN cards. Before these services were available, travelers had just one option — \$6K bit/sec. dial-up connectivity.

Wayport Inc. in Austin, Texas, offers wireless LAN access at airports in Austin and Dallas and plans to roll out its service to 20 airports this year. Global Digital Media.com in Boston has installations at the Boston and Philadelphia airports, while MobileStar Network Corp. in Richardson, Texas, just signed a deal to offer service to American Airlines' Atlanta's Club in 40 airports.

Global Digital Media.com provides travelers with a real bar-

gain — high-speed Internet access at no cost. Wayport says it also offers the service at no charge to help build the market, while Global Digital Media.com plans to support its free service with advertising. MobileStar's rates start at \$29.95 per month or \$6.95 per day, though the Admiral's Club service will be offered free to club members.

All three companies provide their service by installing wireless LAN access points — antennae and receivers connected to the Internet — at multiple locations throughout an airport. A traveler can access the service by turning on a computer equipped with a wireless LAN access card and an antenna. Once the computer is booted up, the traveler is connected.

— Bob Brown and Michael Meekins

AKAMAI STYLE

EXPERIENCE THE INTERACTIVE BROADCAST PLATFORM FOR THE NEW MILLENNIUM.

No one delivers Web content, streaming media and applications like Akamai. Our unique EdgeAdvantage™ platform integrates streaming media with a world of dynamic content, personalization and customization, enabling an interactive broadband media experience for Akamaiized eBusinesses.

Akamai's powerful, high-performance broadcast delivery network opens doors to a new world of broadband and high speed Internet access, changing the media industry forever. The wave of the future is brought to you by Akamai today.
www.akamai.com/streaming



Delivering a Better Internet™

Say Ah kuh my

Join the Akamai Team: jobs@akamai.com

sBusi

ness

2020-2021

**COMPUTER
ASSOCIATES**

Internet Webcasts Become Corporate Bandwidth Hogs

Some companies may ban employee visits to audio and video Web sites

BY MITCH BETTS

IT MAY HAVE BEEN A bell-weather event for the Internet broadcasting industry: On April 28, thousands of fans of Philadelphia's hottest rock disc jockey not only heard his radio show on the Internet, but they also saw Pierre Roberts live in action from 1 to 2 p.m. — using nothing more than the Windows Media Player already loaded on their PCs.

The audio/video stunt was good news for WMMR-FM and video technology partner V-Span Inc., both of which saw their Web traffic jump 100%. But it may portend bad news for network administrators in corporate America.

Lunchtime Listeners

Most of the viewers apparently were in work, using their employers' networks to see the webcast during lunch, a V-Span spokesman said.

Network managers complain that the rapid growth of streaming media — and downloads of MP3 music files — is robbing corporate networks of valuable bandwidth, causing some companies to consider banning employee access to audio and video Web sites.

"Without a doubt, it's a problem, and it's just going to get worse," said Danny Daniels, manager of information systems at Above Board Electronics Inc., a distributor of specialty fasteners and components in San Jose.

He said employee use of audio sites had been doubling every two weeks at Above Board until the company announced a music ban in March. "Somebody will download an MP3 file, and we'll have this huge spike in [network usage] and everything will just come to a screeching halt. It's kind of tough, because most people don't really understand the effect on the company's network," Daniels said.

MP3 files are typically 3MB to 5MB per song — not a big deal for huge companies with multiple T3 lines. But for a location served by a T1 line or a fractional T1, "if five to 10 people are downloading a gigabyte of MP3 files over lunch, that's going to be a tremendous load on the network," said John Hedtke, a Seattle-based author of two books on MP3.

Besides downloading MP3 files, employees are listening to baseball games, Internet radio stations and music channels offering subgenres such as "acid jazz," "British invasion" or "classic crooners." Last month, BRS Media Inc. in San Francisco counted 3,537 radio webcasters.

In fact, hundreds of thousands of at-work employees are visiting music Web sites such as Broadcast.com, MP3.com, Listen.com, iTunes.com and MTV.com, according to Media Matrix Inc. in New York (see chart).

Top Music Destinations for At-Work Browsers

Number of at-work employees who visited the following music Web sites in March:

Real.com	3,708M
Broadcast.com	1,364M
MP3.com	741,000
MTV.com	430,000
Napster.com	336,000
Winamp.com	330,000
Listen.com	267,000
Launch.com	251,000
URL.com	247,000
Tunes.com	237,000
SonicNet.com	212,000
VH1.com	176,000

The Internet radio industry — and its advertisers — are thrilled to reach at-work listeners, who typically have T1 access lines and PCs loaded with sound cards and speakers. And while conventional radio sometimes has a weak signal inside office buildings, Internet radio doesn't have that signal strength problem.

"But it cuts both ways," said Bill Rouse, an Internet radio expert at The Arbitron Co., a media research company in New York. "Generally, the office has more broadband capability through T1 or T3 lines. But network managers sometimes do restrict access to streaming media because it consumes a good deal of bandwidth."

The industry defends Internet radio as a service that provides productivity-enhancing music for office workers — who still can work on their Word documents and Excel spreadsheets while listening. Furthermore, "we stream our music at 20K bit/sec, which takes up an extremely small piece of the pipe," said Mike Romano, vice president of marketing at WWWcom Inc., a music service in Santa Monica, Calif.

A bigger problem comes from Napster.com, a service that helps people share their often-pirated MP3 music files. Each user who downloads the software essentially becomes a Napster server, capable of swapping music with other Napster users.

Many universities banned student access to Napster.com after finding that 20% to 60% of their network bandwidth was being eaten up by the MP3 traffic at peak times. Plus, they weren't comfortable having dozens of unauthorized servers full of music files that may violate copyright law.

It isn't just a university problem. The Media Matrix study found that 335,000 at-work employees visited Napster.com in March.

The next wave of bandwidth-hogging traffic may be video webcasts such as last week's Victoria's Secret fashion show in Cannes, France.

"Video really eats up bandwidth. It kills it," noted Samur Bhavnani, an analyst at Computer Economics Inc. in Carlsbad, Calif.

Many companies already have employee Internet usage policies that typically ban visits to pornography sites, online gambling establishments and the like. But they may not have updated their policies to cover audio or video activity that

quite a bit to bog that down."

Arbitron reports that 41% of at-work Internet users have listened to Internet audio at some point — but that isn't all bad. Certain employees may have good business reasons for monitoring audio newscasts or participating in Web conferences, for example.

Drawing the line is especially difficult at an entertainment company such as Hollywood's Twentieth Century Fox, a unit of Viacom Entertainment Group Inc. There, employees may have a perfectly legitimate reason for downloading a movie trailer from a Web site, said Jeff Usilan, the company's manager of information protection.

Nevertheless, Usilan has in-



JEFF USILAN, manager of information protection at Twentieth Century Fox, says he has little sympathy for Internet radio listeners at work.

ist work-related, Bhavnani added.

Companies can use a variety of Internet filtering tools to monitor or block certain categories of Web site activity. For example, San Diego-based WebSense Inc. recently added — at the request of customers — more than 800 MP3 and audio sites to its database of "inappropriate" Web destinations, a spokesman said.

IT Is Often the Worst Culprit

Companies looking for Internet audio enthusiasts can look no farther than their own information technology departments. Several managers said IT workers are the most active MP3 downloaders so far.

"I'm probably the worst offender. I have not one but two MP3 players," joked Ron Friedman, director of information systems at Meyer Material Co. in Des Plaines, Ill. But he said it isn't a problem because the company has a Gigabit Ethernet network, "so it would take

stalled monitoring software from Burlington, Mass.-based Elron Software Inc. and checks monthly reports to identify workstations making excessive use of music sites. If there isn't a business reason, the offender is asked to stop and the software is uninstalled.

Now that 18% of the company's network bandwidth is being gobbled up by music, Usilan said, "we are getting ourselves positioned to block programs like Spinner [from music site Spinner.com] and Napster."

Usilan said he has little sympathy for Internet radio listeners at work.

"Why in the world would somebody want to eat up your bandwidth listening to radio music over the Internet on PC speakers — when it's cheaper for the company to go and buy stereos for everybody?" Usilan said. "When you look at the cost of what these people are doing in terms of bandwidth and Internet access, it's extremely expensive." ■

#1 in data warehousing and business intelligence

SAS Institute

Warehouse 100 is the
defined by real customers.
Clearly, they found the
Institute—rated #1 in data
business intelligence. Now it's

request a free CD,
sas.com/one or
200.

A. Oracle Corp.
S. Cognos Inc.

SAS
SAS Institute

OMP®/

OMRON

(())



B



C



We took out all the
hooziewhatsits and left
 only the **thingamajigs** you need.

Compaq iPAQ® Desktop. No bells. No whistles. Just business computing made simple. These days, with everything moving to the Internet, your business needs a simple device. One that delivers on the promise of the Internet, and runs all your office applications, too. The Compaq iPAQ Desktop is that simple device – sleekly designed and network-ready to fit into any business environment with ease. So now, there's a word for simple business computing. It's iPAQ.

COMPAQ iPAQ DESKTOP

***499**

*14 monthly lease
 Intel® Celeron® processor 500MHz
 4.3GB Hard Drive
 64MB RAM
 Easy Access USB Keyboard
 with Mouse
 USB only
 Microsoft® Windows® 2000

ADD-ON BUSINESS SOLUTION

***1049**

*30 monthly lease
 Compaq iPAQ® Desktop plus:
 24X Max CD-ROM Multi-Bay
 External USB 56K Modem
 MS-Office Small Business
 3 months Free Internet Access
 through Compaq.NET™ for Business
 17" Color Monitor (16" Wx)

ADD A MONITOR

15" TFTSX10 (13.8" Wx) Flat Panel 1900
 15" SX10 (13.8" Wx) 1199
 17" S710 (16" Wx) 1249

Altera® eSpace™ 30-DAY FREE TRIAL
 Solutions that lower deployment and
 management costs.



We speak your language. Order now.
www.compaq.com/iPAQ 1.877.866.5806



COMPAQ iPAQ

Compaq Kindles User Interest With New Wildfire Servers

Vendor aims for high rung on enterprise server ladder

BY JAHNIMAR VILJAN

COMPAQ Computer Corp.'s continuing effort to be taken seriously as an enterprise server technology vendor kicked into high gear last week with the introduction of its Wildfire series of high-end Alpha servers.

The systems, which support up to 32 processors in some

models, can run both Unix and OpenVMS applications.

They also feature capabilities that are expected to make Compaq a strong contender in the high-end server market, users and analysts said.

Key among those capabilities are clustering technologies for increased scalability and reliability, a dynamic partitioning feature that allows online

resource changes and a modular design that lets users build their systems incrementally.

The latest additions to Compaq's GS Series servers should result "in a dramatic throughput improvement as far as our applications are concerned," said Dave S. Robinson, vice president of MIS at Southeastern Freight Lines Inc., a Lexington, S.C.-based transportation company.

For instance, dynamic partitioning will allow the company to allocate more system resources for running batch applications at times when online application usage is low, Robinson said.

Southeastern, which already uses a range of Alpha servers, plans to buy one of the new systems later this year.

Memory Booster

Celera Genomics Group has purchased one of the servers because the company's work with gene sequencing requires systems that can support enormous

Other vendors support large memories, too, but do not offer the same performance as Alpha.

MARSHALL PETERSON,
DIRECTOR OF INFRASTRUCTURE,
CELENA GENOMICS GROUP

amounts of main memory, said Marshall Peterson, director of infrastructure at the Rockville, Md.-based company.

The company has installed a 16-processor Wildfire server with 64GB of memory and is already looking to increase memory support.

"Other vendors support large memories, too, but do not offer the same performance as Alpha," Peterson said.

Customers such as these are going to be crucial for Compaq. Despite inheriting a slew

of enterprise technologies from its acquisitions of Digital Equipment Corp. and Tandem Computers Inc., the company so far has been largely unable to gain ground against rivals such as Sun Microsystems Inc., Hewlett-Packard Co. and IBM.

For instance, Compaq's fiscal 1999 Unix server revenue share of 5.5% was well behind Sun's (32%), HP's (26%) and IBM's (18%), according to market research firm International Data Corp. (IDC).

Market Opportunity

The servers present a good opportunity for Compaq to gain some ground in the high-end market, said Jean Bonzman, an analyst at IDC in Mountain View, Calif.

"But they need to come out much more strongly in terms of marketing" and selling the system, she said.

Compaq said it hopes to make \$1 billion in Wildfire sales this year. Last week, the company claimed to have already booked orders for 237 systems.

The Wildfire family will be available in 8-, 16- and 32-CPU configurations. Prices range from less than \$100,000 for low-end configurations to more than \$1 million at the high end.

An AlphaServer G3300 with 16GB of memory and 16 processors will cost approximately \$83,000.

Compaq's Wildfire Systems

The servers are available in three configurations:

Compaq AlphaServer G880

Up to 8 CPUs, 64GB of memory and 16 PCI buses, with 56 PCI slots and more than 1GB byte/sec. aggregate internal bandwidth.

Compaq AlphaServer G1000

A two-cabinet system supporting up to 16 CPUs, 128GB of memory and 32 PCI buses, with 112 PCI slots and more than 26GB byte/sec. aggregate internal bandwidth. Supports four system partitions.

Compaq AlphaServer G8800

A three-cabinet system supporting up to 32 CPUs, 256GB of memory and 64 PCI buses, with 224 PCI slots and more than 56GB byte/sec. aggregate internal bandwidth. Supports eight system partitions.

Oracle Takes on NT-like File Management

File system lets database manage files

BY CHRISTINE MCGEEVER

If Oracle Corp. Chairman and CEO Larry Ellison had his way, all of the world's data would reside in an Oracle database. But first things first: Oracle databases need a file management system like the one Microsoft Corp. has in Windows 9x, NT and 2000.

With last week's release of Internet File System (IFS), the campaign to take over the world's data has begun. Oracle is offering IFS, along with a developer's kit, for Sun Microsystems Inc.'s Solaris and the Windows NT platform as a free download from the Oracle Technology Network Web site. And it's bundled with both the

standard and extended editions of Oracle.

IFS enables users to store files in a directory on an Oracle database server. Files maintained in IFS can be accessed by a Web browser or through the familiar Windows file management utility, Windows Explorer.

Users can search for files, as well as for text within files; create file versions; and secure files, using database security attributes. The result, said Ellison, is "a universal repository, gracefully managed," for documents, spreadsheets, Web pages, XML-formatted business forms and graphics.

Users attending the Oracle

iDevelop2000 conference at Oracle's headquarters in Redwood Shores, Calif., last week had varying reactions to the IFS announcement.

Karl Goldstein, a developer at ArsDigita Corp. in Cambridge, Mass., said he hasn't downloaded IFS from the Oracle Web site and doesn't know of anyone who has. He said he's

concerned about the security implications of allowing the database, rather than the operating system, to manage files.

Security Claims

But according to Ellison, Oracle's IFS is "the highest level of government certification for security," meeting Federal Information Processing Standard 140. He also noted that "documents stored in IFS inherit the security attributes of the database," so the files are as secure as any other data maintained in Oracle.

Still, Goldstein said he's waiting to see how IFS is accepted in the market. Besides, he said, he can accomplish the same task using existing utilities from other vendors, so an Oracle offering may not attract a lot of developer attention right now.

Karl Bittner, president of I/O Systems Inc. in Cambridge,

Mass., said his company used the IFS developer's kit to incorporate extensive file management capabilities into its MarkView document management and imaging system, which it implements over the Internet for its customer base of Fortune 1,000 companies.

"IFS was attractive due to the notion of having all of the data [centrally managed], regardless of its source," he said.

Teri Palanca, an analyst at Gartner Group Inc. in Cambridge, Mass., said IFS doesn't synchronize data in the files it manages with native database files, so updates to the database aren't reflected in the IFS file system.

"It's strictly a file system replacement, and there's no measure yet of how attractive this is to customers," without stronger integration with the database management system itself, Palanca said.

AT A GLANCE Oracle Says That IFS:

● Is written entirely in Java

● Includes open APIs and source code in the development kit

● Will eventually be implemented on an ASP basis for consumers from an Oracle Web site, on Oracle servers

You've been waiting for someone to act like a partner, not a vendor.

You've been waiting for an Internet that lives up to its potential.

You've been waiting for an e-business approach that's complete and fully integrated.

You've been waiting for someone to help reduce time to market.

You've been waiting for a way to simplify e-business infrastructure.


You've been waiting for someone that can make your life easier.

You've been waiting for a partner that solves your problems rather than pushes their products.

You've been waiting for someone who won't disappear once they install.

You've been waiting for solutions that won't become obsolete the second your company grows.

The wait is over. Genuity is here.



GTE Internetworking is now called Genuity. And Genuity is a new kind of partner. One with a fully integrated approach. With people who understand what you want to do, where you want to go and how to get you there. Yesterday, you knew us as GTE Internetworking and BBN, the firm that originally brought you the Internet. From now on, you'll know us as Genuity, an e-business solutions provider that understands how to realize your vision.

www.genuity.com 1-800-GENUITY

GENUITY

What is Windows 2000 Advantage?

Windows 2000 Advantage is the partnership among Microsoft, Compaq and Computerworld Enterprise Business Solutions to inform IT leaders about Windows NT and Windows 2000 technology by providing timely, useful information — in print and online — for planning and deploying Windows NT and Windows 2000 with Compaq services and solutions.

Online This Week

Compaq Intelligent Manageability tools make life easy for PC users

Technical support is faced with the task of installing, configuring and updating PC desktop software. Often, they must do it for hundreds of users at a time. This happens when a company acquires a new division, when it adds multiple overseas sites, or when it decides to migrate to a more powerful hardware platform. This task has just become easier.

Kerberos explained

Although this article is a primer to Kerberos authentication, it is a highly technical review. Kerberos is an integral part of Windows 2000 Active Directory implementations, and anyone planning to deploy and maintain a Windows 2000 enterprise must have a working knowledge of principles and administrative issues involved in this security technology.

Richard Fade talks about the Compaq-Microsoft relationship

As vice president of OEM/Multinational accounts at Microsoft, Richard Fade is responsible for Microsoft's business relationships with Compaq and a relatively small group of companies that comprise the world's largest PC manufacturers. Just to put that in perspective, about 80% of the world's PCs are made by this group. Fade discusses the Microsoft-Compaq relationship and the value it offers to the two companies and to their customers.

Quickpoll Is your organization planning to initially implement Windows 2000 with or without Active Directory?

Cast your vote now at

www.Windows2000Advantage.com

Check out the current results:
Base: 168 ▶



Microsoft

SPECIAL ADVERTISING SECTION

Windows 2000

Simplicity, power and price make Compaq's internet PC a winner

By Robert Williams

The Compaq iPAQ was developed to meet the needs of commercial environments in which simplicity and consistency of design, low price and full function are critical factors. Our evaluation and testing of the iPAQ suggests that Compaq has achieved its objectives with a feature-rich and elegantly designed commercial system.

Compaq is responding to the need of today's client computing for a simpler set of solutions. Increasingly, the PC has become a commodity in which a single design can fit most requirements. According to Michael Takemura, iPAQ product manager, "There is a real paradigm shift stimulated by the Internet and the requirement for 24/7 support. The iPAQ is designed to bridge between pure Internet devices and the traditional PC. With built-in network capabilities, the iPAQ becomes a computing appliance that can be literally plugged in anywhere within the enterprise."

The Compaq iPAQ is designed as an easy to integrate, support and use Internet-ready computer. It clearly addresses the increasing needs for task-oriented devices that are less complex and option-prone. This does not mean that the iPAQ is a limited function, stripped-down computer. On the contrary, it was designed to meet the needs of real-world

infrastructure productivity coupled with immediate network access.

The iPAQ is shipped in either a standard or legacy-free configuration. The standard model comes with a serial and parallel port in addition to two Universal Serial Bus (USB) ports. This version was available for those environments in which older peripherals must still be supported. It runs with Windows 9x, Windows NT or Windows 2000. Clearly, the most innovative and cost-effective model is the legacy-free configuration with five hot-swappable USB ports. The legacy-free version enhances manageability and greatly simplifies deployment through the sole use of USB device support. The iPAQ doesn't provide ISA/PCI expansion slots.

The Windows 2000 Advantage technical team evaluated the legacy-free configuration of the iPAQ within a Windows 2000 Advanced Server domain environment. With a stopwatch in hand, we

unpacked the system, attached all included USB devices (mouse, keyboard and flat screen display), plugged it into our network (with the standard LAN RJ-45 interface) and turned on the system. Literally less than five minutes passed before the system was running the preinstalled Windows 2000 Professional environment.

For the full test of story, visit www.Windows2000Advantage.com.



Michael Takemura, iPAQ product manager

ADVANTAGE

► Feature

Two early users give Windows 2000 thumbs-up

By Johanna Ambrosio

Windows 2000 Professional Edition, the client version of Microsoft Corp.'s new operating system, has made one of the strongest starts ever among business users. Two happy early adopters include Eastman Chemical and the Lake Washington School District.

Eastman Chemical is a supplier of plastics, coatings and chemicals based in Kingsport, Tenn. It plans to outfit all 11,000 of its desktops and laptops with Windows 2000 Professional Edition by the end of September.

The major reasons for the move revolve around the improvements the operating system offers in robustness and mobility.

"With my old PC, it was rare to go a day without rebooting," says David Hrivnack, manager of the global desktop replacement project at Eastman Chemical. "With Windows 2000, I normally go more than a week between reboots."

Hrivnack also points to a host of features for mobile users, including being able to unplug from the corporate network and reconnect just about anywhere without having to reboot. Users can reconnect to various networks multiple times, allowing them to go from home to airport to hotel to conference room back to the office, all

without rebooting.

"This allows people to use laptops the way they should be used," Hrivnack says. Another plus, he says, is the ability to support just one operating system. Because Windows 2000 incorporates features of Windows NT, Windows 95 and Windows

98, it meets the needs of just about everyone in the company, whether they be desktop power users or road warriors. This will decrease help desk costs because a support staff needs to know just one operating system. Another boon to the bottom line is Windows 2000's stability—Hrivnack says fewer crashes mean fewer help desk calls.



All told, the company is expecting to reduce the cost of managing its desktop systems by 8%. "We believe we've already got the lowest support costs in our industry," Hrivnack says, "so this is on top of already being best-in-class."

Windows 2000 sports another benefit for the global corporation: multilingual capabilities. "You can be working in native Chinese, and then with one click, the menus can revert back to English for communication with the help desk," Hrivnack explains. "We've done tests where a person has an English-language operating system that's running Word in Spanish and sending an Outlook note in Chinese."

More rapid growth than NT

"Comparing Windows NT to Windows 2000, I've seen much more of a hockey-stick curve with Windows 2000," says Neale Seil, director of strategic partnerships and marketing at Compaq's desktop PC division. Whereas Windows NT usage grew more gradually, Windows 2000 has been a rocket, she says.

This is all the more remarkable given how businesses are usually much slower to adopt new technology than are consumers. "The larger the corporation, the longer it usually takes" to buy into new things. Seil adds. In addition, this is the first version of Windows 2000, and business customers are well-known for waiting until the second round of just about anything before committing it.

For the full test of story, visit www.Windows2000-Advantage.com.

The Web Magazine for IT Leaders
Implementing Windows NT and Windows
2000 with Compaq Services and Solutions

Point of View

Blending talents for Datacenter Program for Windows 2000 Datacenter Server OS

By Nora Isaacs

Enterprise customers deserve the best. When Microsoft set out to develop the Datacenter Program, a complement to the Windows 2000 Datacenter Server operating system, it wanted to ensure that the needs of these customers would be completely addressed. They turned to Compaq Computer Corp.

"Microsoft has been working with Compaq from day one," says Michel Gambler, group product manager, enterprise server marketing, at Microsoft. "Right when the Datacenter product was conceived in late 1998, Compaq was essentially involved in all of the aspects of the operating system and the programs that surround it."

Compaq has been instrumental in many levels of developing the Datacenter Program, which delivers integrated hardware and software support for environments that run on large servers. On the technical side, 10 Compaq engineers have been hard at work for over a year, while their marketing and business development counterparts

have been on the project nearly long.

Compaq is driving the program around what their customers want, and then Microsoft is setting the standard.

"We've talked to between 40 and 50 customers in the last few months, and we see some commonalities in what the key elements of our Datacenter Program need to be," says Loree Baumgardner, product marketing manager at Compaq. "These customers have been actively helping us define the elements of our Datacenter program, and then we drive that back to Microsoft."

Joint Support Teams

One of the most common requests by Compaq's Fortune 100 customers is for a joint support team staffed by Microsoft and Compaq. "We worked closely with Compaq—who has a wealth of experience in serving high-end systems—to define what will be relevant in terms of high-end services in a Windows environment," says Gambler.

For the full test visit www.Windows2000-Advantage.com.

www.Windows2000Advantage.com

FCC Weighs Ultrawideband Wireless Use

BY BOB BREWIN
The Federal Communications Commission (FCC) earlier this month confirmed that it will

consider approving the uncensored use of ultrawideband technology, which it said could potentially provide "enormous

benefits for public safety, consumers and businesses."

The FCC said the proposal could "pave the way for a vast

array of new products," including wideband wireless data systems. As its name implies, ultrawideband (UWB) has the potential to provide short-range, high-speed wireless data transmissions, which could

make wireless access to the Internet as fast as wired connections by spreading signals over a broad swath of the frequency spectrum instead of a single fixed frequency.

Ralph Petroff, chairman of Time Domain Corp., a Huntsville, Ala.-based company that has championed UWB, said the technology has the potential to deliver "megabits of information at microwatts" of power.

Jim Lovett, director of strategic policies at Palo Alto, Calif.-based start-up Fantasma Networks Inc., said the technology has a "giant advantage" over other broadband wireless systems because it "conveys the most megabits at the lowest cost." Fantasma plans to develop household wireless systems based on UWB.

Interference Concerns

But the FCC said it will only approve widespread use of UWB if ongoing tests determine that it doesn't interfere with other systems. The FCC is especially concerned about the U.S. Department of Defense's Global Positioning System (GPS), which is used by airlines around the world for navigation and by the military to direct "smart" weapons.

The Pentagon views UWB wireless transmission as a "significant technology," but it wants to make sure its use doesn't degrade GPS signals, a senior Defense Department official said.

Petroff, speaking at the Networld/Interop 2000 conference earlier this month in Las Vegas, dismissed the notion that UWB will interfere with GPS. Time Domain transmits "millions of bits of a watt over the 2-GHz [GPS band]," he said. "If we interfere with GPS, we don't have a business."

Lovett said Fantasma is so concerned about interference with the GPS band that it "forfeits" use of GPS frequencies in the UWB products it develops. ■

WE CAN TAKE YOU HIGHER.



CHOOSE THE LEARNING APPROACH THAT'S BEST FOR YOU.



New Horizons Computer Learning Centers help you keep up with technology and improve efficiency and productivity.

Exceptional classroom training. Students learn from qualified instructors. Classes are conducted in comfortable, well-equipped classrooms with one computer per student.

Convenient technology-based training. Stimulating, interactive learning using the Web or CD. Students set schedules and pace.

Accommodating on-site training. You set the time and class size. We come to your location with an instructor and computers.

More courses at more times. All the applications and technical certification courses you need—days, evenings and weekends. We do more Microsoft technical training and certification than any other company.

More centers. Conveniently located across the country and around the world.

Telephone assistance 24 hours a day, 7 days a week. For 60 days following applications courses.

Guaranteed results. Students may retake applications courses free of charge if they fail on the first try. Ask about our technical certification test-pass guarantee.

For a center near you, call 1-800-PC-LEARN today. Or visit newhorizons.com on the Web.


New Horizons®
Computer Learning Centers
World leader in computer training.

© 2000 New Horizons Computer Learning Centers, Inc.
New Horizons is a registered trademark of New Horizons Education Corporation.

AT A GLANCE

Ultrawideband

■ Spreads signals across a broad swath of the frequency spectrum, which results in high data throughput (megabits per second) at milliwatts of power.

■ Widespread use of UWB depends on ongoing testing of potential interference with GPS receivers.

■ The Pentagon says UWB is "significant."

BRIEFS

EMC Cancels \$38 Deal

Hopkinton, Mass.-based EMC Corp. has canceled its commitment to buy \$3 billion worth of disk drives over five years from IBM, as part of a settlement between the two companies. In March 1999, the companies struck a \$3 billion deal whereby EMC would continue to buy IBM disk drives for use in EMC Symmetrix products. The deal also included patent cross-licensing between the companies. However, the deal fell through as part of a patent infringement settlement earlier this month. IBM and EMC, in a joint statement, said all claims and counterclaims pertaining to the patent dispute were dismissed.

Services Drag on CA's Fiscal 2000 Earnings

Computer Associates International Inc. last week reported record results for its fourth quarter, though it admitted that its professional services and European operations both underperformed. "I wouldn't be telling the truth if I said I wasn't disappointed" in the performance of professional services, said Sanjay Kumar, president and chief operating officer of the Ithaca, N.Y.-based software giant. Kumar laid some of the blame on CA's Millennium Watch program, through which it offered free services to top customers during the Jan. 1, 2000, rollover period, writing off these expenses as a "goodwill" builder.

Ebay Sticks With Sun As Prime IT Supplier

Despite several well-publicized system crashes that froze its Web auction site last year, eBay Inc. has decided to stick with Sun Microsystems Inc. as its primary supplier of servers, software, storage and professional services, the companies confirmed last week. Earlier this year, eBay sent out requests for proposals from other companies to replace Sun as its technology provider and attracted heavyweights such as IBM and Hewlett-Packard Co. However, Sun "demonstrated a proven combination of technology performance and service," Maynard Webb, president of the auction site's eBay Technologies division, said in a statement.

Developers Don't Mind Mac OS X Delay

They're happy with extra time to prepare

BY GONNIMORE DECKMANN

THREE AND-A-HALF years after acquiring Next Software Inc., Apple Computer Inc. is still struggling to merge Next's Unix-based operating system with its own Mac OS. Last week, it said the release of the much-anticipated Mac OS X desktop operating system has slipped once again, this time to early next year.

But few at the Apple Worldwide Developers Conference last week said they mind the delay. Mac OS X will bring users long-awaited features such as pre-emptive multitasking and memory protection.

Introducing a public beta

this summer and pushing customer shipments back to next January "means more time to get feedback [from users] back into the operating system," said Tim Voss, a senior software developer at Ottawa-based IBM subsidiary Object Technology International Inc.

"What had been previously announced in January [that Mac OS X would ship this summer] was maybe a bit optimistic," said Paul LaBonde, a programmer at Zero-Knowledge Systems Inc. in Montreal.

Some said the delay would help them get their applications ported in time for the operating system's launch.

Meanwhile, initial criticism of the new user interface,

Aqua, has prompted Apple to rework Mac OS X's look and feel in the newly released Developer Release 4. Modifications include a version of the Finder file manager that works more like the original Finder in the current Mac OS 9.

According to Apple, more than 200 application developers have committed to Mac OS X, including San Jose-based Adobe Systems Inc. and Microsoft Corp. But some faulted the piecemeal way in which Apple has been divulging information about Mac OS X.

"It's been like pulling teeth to get information from Apple," said Jeffrey Bernstein, president of Digital Desktop Consulting in Los Angeles. And Chris LeTocq, an analyst at Gartner Group Inc. in San Jose, said Apple will likely renege on Mac OS X will be

Apple Moves Ahead

Despite pushing back shipment of Mac OS X to next January, Apple moves ahead on other fronts. News from the Apple Worldwide Developers Conference included:

- Mac OS X public beta will ship this summer
- New QuickTime version will support streaming of MPEG1 and MPEG2 formats
- Web Objects development test replicated to \$699 from \$50,000, all Java version due later this year
- Music video effects software from Alias Weekend will ship on Mac OS X

positioned toward consumers.

When Apple first outlined its plans to merge the Mac OS with OpenStep three years ago, developers balked at having to rewrite applications for a new operating system. A turning point came a year later, when Apple added a rewritten set of Mac OS application programming interfaces, making it much easier to port software. ■

Disaster Recovery Firm Shifts Focus to E-Commerce

Comdisco wants to keep Web apps up

BY LEE FLOPANO

Comdisco Inc., a \$4.2 billion firm that built its reputation on disaster recovery services, is no longer talking about disaster recovery in the traditional sense: Something bad might happen, so plan how to recover from it. Instead, the Rosemead, Ill.-based Comdisco is shifting its focus to continuity plans that concentrate on keeping critical Web applications available — and warding off a different type of potential business disaster: the bot bot signal.

Computerworld senior editor Lee Copeland recently spoke with John A. Jackson, president of continuity services at Comdisco, at the company's annual

user conference in Chicago.

Q: What kinds of lessons do you extract from events like denial-of-service attacks and computer viruses?

A: Companies have to accept the fact that they are managing something that they can't control anymore. The data center used to be a very closed environment. Going back to the late '60s and the '70s, it was all dumb terminals, connected by a [coaxial] cable into a control unit. There was very little networking. There wasn't an opportunity for intruders and unauthorized people to gain access to the computer systems. The Internet has really opened up access.

Q: Does that kind of environment make disaster recovery obsolete?

A: It doesn't make it obsolete, but it changes it. Ten years ago, most of our customers were happy with 48-hour to 72-hour recovery. Today, 47% of our customers want recovery in under 24 hours. In the e-commerce world, they want recovery within seconds. It's not a case of experience and react: You have a disaster, and you react to it. It's anticipate and adjust: You have to anticipate what's going to happen and start adjusting your environment to account for that, so that you never have a failure.

The e-commerce world is driving bigger, faster, quicker recovery solutions to address e-commerce and more mission-critical apps.

Q: Is it just the dot-coms and e-commerce-intensive companies that need high-availability services and continuity-of-service plans?

A: Bank One [Corp. in Chicago] is a good example. They use us for traditional recovery, but now they've got Wingspan-Bank.com, their e-commerce business, and they are looking at a totally different recovery model for Wingspan-Bank.com than they are for traditional banking applications. Traditional

businesses with Internet e-commerce [components] are looking at totally different solutions for the different parts of their business.

Q: Is the concept of the hot site changing, too?

A: Yes. One way that it's changing is that customers are asking us for a more dedicated solution in the hot site model. The old hot site model was to put in equipment that you share among 100 different customers.

But as companies are starting to have more specialized equipment, what we're seeing is that some of that specialized equipment, on a customer-by-customer basis, is moving into the hot site. So they are still using the shared model for the IBM mainframes and AS/400s, the Sun and the HP platforms, but they might be installing their own servers and network connections and their own dedicated routers for certain applications. The traditional hot site model is evolving to be more of a hybrid. It's still a shared model for certain things, but it's specialized and dedicated equipment for others. ■



COMDISCO'S John A. Jackson: Continuity is the key

CONTENT SECURITY. THE GOOD, THE BAD, AND THE UGLY.

"Businesses lost \$7.6 billion in enterprise system attacks the first six months of last year alone." (Without counting, hundreds of millions in lost productivity.)

Your enterprise has to be connected on a global scale to compete in today's business environment. Every day there are headlines warning about your vulnerability to internal or external attacks.

Content Security is forcing corporations to examine privacy, confidentiality, and safety issues to their very core. Today's unregulated online territory exposes enterprises to disastrous, malicious possibilities that threaten your ability to conduct business and potentially could shut your organization down.

But don't panic.

By implementing a strategic policy to assess and manage your security risks, you can successfully protect your networks from attacks, exposure to liability, security leaks, and even revitalize employee productivity.

DID YOU HEAR THE E-MAIL JOKE ABOUT THE GUY WHO COST THE COMPANY MILLIONS?


The one about the tasteless joke some clown thought was funny. It wound up in an e-mail box that resulted in a \$2.2 million sexual harassment lawsuit.

The fact is, last year the Supreme Court ruled

companies are liable and responsible for inappropriate e-mail communications between employees, regardless of whether or not the company was aware of the communication.

And improper use of e-mail privileges not only leaves you vulnerable to lawsuits, it exposes you to loss of confidential, proprietary information. For example, employees who inadvertently send sensitive corporate

THE GREATEST THREAT TO YOUR BUSINESS
NOT TO MAKE



THE JOKE E-MAIL SPAMMER. THE ONLINE BARGAIN HUNTER. THE MALICIOUS CODE WRITER.

trade secrets and strategic documents like salaries or financial plans.

By scanning e-mail usage, you can monitor suspicious content and reduce e-mail volume, thereby boosting bandwidth.

SOME TEENAGERS HAVE AN EASIER TIME WRITING MALICIOUS CODE THAN GETTING DATES.

Some can be mischief-making 15-year-olds writing

malicious code. On the other hand, there are real ugly enemies out there.

Rogue employees and virtual terrorists bent on stealing company secrets, spreading malicious viruses, crashing servers, and potentially causing economic chaos.

If someone hates you, without intrusion detection they can electronically paralyze your site,

the streaming videos of sports highlights.

Perhaps a good employee, but an unwitting threat to your organization. For as he's accessing inappropriate sites, he's also unintentionally exposing the enterprise to malicious code, software incompatibilities, and potential liabilities.

This misuse of Internet privileges has significant real costs. It drains bandwidth and

company resources. In just one month, non-work hours spent on the Internet can cost a corporation hundreds of thousands of dollars in lost productivity.

At Symantec, we're in a position to help you deal with these challenges.

We provide a multi-tier protection program that begins with risk assessment, a program that helps you monitor and manage all Internet content that flows through your enterprise. Symantec Content Security solutions deliver technologies

perform industrial terrorism, and even hold your business for ransom.

WHO KNOWS WHAT EVIL LURKS IN THE OFFICE NEXT DOOR?

Take the guy down the hall who looks like he's working while he downloads inappropriate content or trades stocks, follows auctions, shops, posts resumes, surfs for hours, or catches

for scanning Internet and e-mail content, and screening viruses and malicious code intrusions.

So please log on to www.symantec.com/enterprise-security or call 800-745-6054, ext. 9TT2, for more comprehensive solutions to your Content Security issues.

SYMANTEC

Call us today at 800-745-6054,
ext. 9TT2, or visit www.symantec.com/enterprise-security
for more information or to speak to a sales representative now.

IS OUTSIDE, INSIDE, AND EVERYWHERE.
YOU PARANOID.



MARYFRAN JOHNSON

Future Watch

IN VISITING one of IBM's research labs some time ago, I was entertained by all manner of cool gadgets and various works in progress. Many will never see the light of product rollout or have fairy-tale marketing copy penned in their honor. The one I vividly remember — and keep watching for — was a car phone

that could access your e-mail or your favorite Web site and read the contents back to you. It responded to voice commands such as "delete" or "read the next one." It was something that I never knew I always wanted.

I thought of that still-elusive technology last week, as I was reading the first of the Future Watch features in our Technology section. Brent Lowensohn, director of advanced technologies at Kaiser Permanente Information Technology, was talking about his interest in 10 Gigabit Ethernet. "The most exciting part of this is the real potential that something we never thought of is going to come into our lives," he said about this tenfold increase over current networking speeds.

Future Watch's mission is to give you glimpses of tantalizingly possible technology, the stuff you dream about using but can't quite get your hands on. Not yet, anyway. In considering what to cover in the new weekly section, we'll keep in mind what Albert Ein-



MARYFRAN JOHNSON is editor in chief of Computerworld. You can contact her at mjohnson@computerworld.com.

stein once said: "If at first the idea is not absurd, then there is no hope for it."

Consider this week's story (page B2) about Carnegie Mellon University's Robotics Institute, where experts envision things like a tiny robot you flush down the toilet to inspect sewer pipes. In only a few years, the market for highly specialized robotic devices might be as unexpectedly hot as Internet auction sites are today. Already wandering the halls at Carnegie

Mellon is a mobile robot that startles visitors by asking them to push the elevator button — showing how the best robots are the ones smart enough to ask for help.

We'll take a hint from that robot ourselves, in fact. If you have suggestions for Future Watch topics, assistant technology editor Tommy Peterson (tommy_peterson@computerworld.com) would welcome your thoughts and ideas. We hope this new weekly feature will give you something that you never knew you always wanted. ■

DON TAPSCOTT

Freenet may make the Internet a wilder place

WHEN NAPSTER's music-finding software appeared late last year, it helped fuel a global feeding frenzy in unauthorized MP3 music files by using the Internet to link the hard drives of millions of music fans.

But the Napster/MP3 controversy pales in comparison to what the future holds. A wave of more ambitious Napster clones is appearing, the most powerful of which is Freenet. The software's chief architect claims the program will achieve nothing short of "near-perfect anarchy."

The software promotes unfettered distribution and replication of digital information on the Internet.

Right now, the most conspicuous target is music, but other forms of copyrightable content, such as books and reviews, will soon also be digitized and therefore will be vulnerable.

The Freenet programmers, all of whom are volunteers through The Freedom Network Project, say the system "is completely decentralized, meaning that there is no person, computer or organization in control of Freenet or essential to its operation."

Like Napster, Freenet can link a vast number of users. But with Freenet, data is constantly shuffled from one user to another, and a computer owner doesn't know what's stored on his hard drive at any given time. Once a piece of information enters the Freenet maw, it can't be expunged.

- Both authors and readers of information can remain anonymous.
- Information can be distributed throughout the Freenet network in such a way that it's effectively impossible to determine its location.
- Anyone can publish information — you don't need to buy a domain name or even a permanent Internet connection.

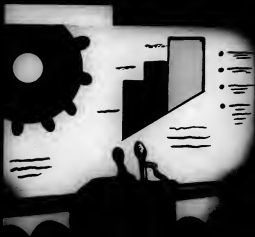
With respect to copyrighted material, two groups are directly affected. First are the artists, including musicians, authors, poets and film stars. As a society, we must devise ways to protect their livelihoods. Second are the companies that control the distribution channels, such as the record labels, publishers and television networks. To survive, they clearly need to reinvent their business models around the Web, rather than pretend it doesn't exist.



DON TAPSCOTT is chairman of Digital Rights (www.digital-rights.com) and co-author of the newly released book *Digital Capital*. Contact him at don@digital-rights.com.



White
Paper



ASP: Market Hype or a Real Option for Your Business?

COMPUTERWORLD



IT'S THE IT VERSION OF A SECOND CHILDHOOD - YOU GET THE GOODIES, WE DO THE WORK. INTERLIANT WILL HOST AND MANAGE YOUR CRITICAL APPLICATIONS FOR YOU, OVER SECURE NETWORKS. WE'LL LOWER YOUR COSTS, ASSURE SCALABILITY AND HANDLE ALL UPGRADES. PLUS DO WHAT MOST ASPs WON'T - TAKE FULL RESPONSIBILITY. FOR MORE, 1-800-291-1053 OR WWW.INTERLIANT.COM BIRTHDAY

Interliant WE SELL SANITY.

STANDING

The **ASP Offering**

By
Meredith
McCarty Whalen,
IDC

You've probably heard of application service providers (ASP) by now. But what exactly do they provide? And more importantly, what benefits can they bring to your organization? Understanding the benefits of ASPs can be difficult because so many different companies are calling themselves ASPs. They provide a unique service — one that has characteristics and benefits distinct from traditional services.

This white paper will help you understand ASP service offerings and how your organization can benefit from them.

Defining ASP Service Offering

ASPs provide a contractual service offering to their customers for deploying, hosting, managing and providing access to an application from a centrally managed facility. Several characteristics separate ASPs from other services including the following:

- **Application-centric.** The core value of the ASP service is providing access to and management of an application that is commercially available. This service is different from business process outsourcing where the outsourcing contract encompasses management of the entire business process such as Human Resources or finance. It is also different from hosting services, where the focus of the service is management of the network and servers but virtually no application management.
- **Application access.** Another value of the ASP service is that customers gain access to a new application environment without making investments in the application licenses, servers, staff and other resources. The ASP owns the software or has a contractual agreement with the software vendor to license it.
- **Centrally managed.** The application service is managed from a central location rather than at each customer's site. Customers access applications remotely — for instance, over the Internet or via leased lines.
- **One-to-many service.** The ASP service is designed to be a one-to-many offering. The ASP partners with other vendors to package standardized offerings that many companies will subscribe to over a specific contract period. IT outsourcing and application management services, conversely, are one-to-one, with each solution deployed meeting the unique needs of the client organization.
- **Delivers on the contract.** The ASP is responsible for delivering on the customer contract and seeing that the application service is provided as promised. If a problem arises, the ASP is responsible for closing the loop on the trouble ticket.



Business Analyst, Emerging Technologies, and the Office of the Future, Strategy and Analytics, New York, NY (ASPI) research organization. She is responsible for providing market analysis, research and consulting on key aspects of the Internet services and ASP markets. She has been instrumental in defining this emerging market landscape and forecasting future market size and growth.

How Do ASPs Differ?

Even if two ASPs offer the same set of applications, they can differ in the type and level of business expertise they offer. The Service Level Agreements (SLA) they provide, the systems they run on and the global reach of their business

Understanding the Available Applications

According to IDC, applications ASPs deliver will range from simple to complex. They fall into one of the following categories:

- **Personal applications:** These include office suites such as Microsoft Office and consumer applications such as games, home productivity and education software.
- **Collaborative applications:** These include groupware, e-mail and conferencing applications.
- **Customer relationship management (CRM) applications:** These include business segments such as sales force automation, customer service and marketing applications.
- **Enterprise resource management (ERM) applications:** These include accounting, Human Resources, materials management and facilities management.
- **Vertical applications:** These include any industry-specific application, such as manufacturing resource planning in the manufacturing industry, patient billing in the health-care industry and claims processing in the insurance industry.
- **Analytic applications:** These include any application built to analyze a business problem such as financial analysis, customer churn analysis, Web site analysis and risk analysis.

Understanding the Available Services

Services offered by ASPs also range from simple to complex. These service offerings fall into one of the following categories:

- **Core services:** These are base-level services including managing the application environment and providing application updates and upgrades, around-the-clock monitoring of the application, and network and basic customer support.
- **Managed services:** These include all of the core services, plus additional services and guarantees related support, security, application performance and data redundancy.
- **Extended services:** These are the managed services, plus additional professional services. Extended services include application configuration and extension, strategy and planning, and training and educational support.

Enterprise, Collaborative and Personal ASPs

ASPs need to provide more than core services when they deliver complex applications such as enterprise resource planning (ERP). Organizations will demand extensive customer support, service guarantees and even system integration services when it comes to mission-critical ERP applications. On the other hand, there may be lower support and service requirements when it comes to word processing or even consumer applications.

IDC has created three categories to describe the various types of ASP service offerings:

1. **Enterprise ASPs:** Offer managed or extended services around the analytical, vertical, ERM, CRM and high-end e-commerce applications.
2. **Collaborative ASPs:** Offer core or managed services around collaborative applications such as groupware, e-mail and conferencing. Being able to provide guarantees around application uptime is often a greater focus than their ability to provide system integration services.
3. **Personal ASPs:** Offer core services around personal applications such as office suites or consumer applications. These ASPs specialize in high-volume businesses, typically with a concentrated expertise around managing the network and data centers.

How Viable are ASP Services?

ASP services are still in their infancy, although the market is maturing quickly. IDC estimates that customers worldwide spent \$300 million on ASP services last year. We see rapid growth taking place in the next several years. IDC estimates that customers will spend over \$7.7 billion on ASP services by the year 2004. (See Figure 1.)

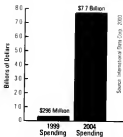


Figure 1 Worldwide Spending on ASP Services Forecast

Why Will Companies Use ASP Services?

Our forecast for ASP spending is based on the challenges facing companies and the relevance that ASPs will play in helping companies solve their business challenges, which include the following:

- **The need to deploy e-business.** This means implementing e-commerce, CRM and supply chain management applications. As companies face the daunting task of implementing these new applications, they may be inclined to outsource the entire application deployment and management to an ASP.

- **Shorter application cycles.** By the time companies get their systems implemented and tested, they find the next release is on the horizon. An ASP service that can provide perpetual maintenance and the latest versions of an application is one way to address the dizzying pace of application life cycles.
- **Locating and retaining skilled IT staff.** Using an ASP enables corporations to move scarce IT resources from application maintenance projects to those that are more cutting edge.
- **Rapid deployment.** Operating in an Internet economy means speed to market. Organizations under pressure to deploy their new applications environments in record time may turn to ASPs and their rapid implementation methodologies as a way to address these demands.

The Challenges and Risks Associated with ASP Services

There are a series of business challenges that will drive your organization to utilize ASP services, and there are several challenges for ASPs with respect to the viability of their service offerings. These challenges could slow the adoption of ASP services. They include the following:

- **Customer acceptance:** The rate at which this market grows will depend on how well ASPs can demonstrate their value to customers and turn this into a demand-driven market.
- **Infrastructure:** While the Internet and wide-area networks are prevalent in the U.S., high telecommunication costs and incomplete network infrastructure are inhibitors to the acceptance of ASP services in some regions outside of the U.S.
- **Flawed execution.** How well and how responsibly the vendors execute this market will determine the growth of the ASP market. An ASP must deliver on its contracts and meet or exceed customers' expectations.



COMPUTERWORLD

This White Paper was created by Computerworld's Custom Publishing team, led by senior editor, managing editor, Nicholas M. Lewis, at 800-421-8234 or info@computerworld.com. This White Paper, as well as other custom supplements, can be viewed online at www.computerworld.com.

How to Select What is Best for Your Organization

The following is a list of criteria you should consider when assessing an ASP offering. If your organization meets some of these criteria, then an ASP offering may be what you need.

- Attracting and retaining IT staff is a challenge
- There is a need to deploy applications rapidly
- IT isn't a core competency
- Your organization is undergoing rapid growth and needs to scale its IT infrastructure quickly
- Your organization is undergoing merger and acquisitions and needs a flexible IT infrastructure
- Your organization is a start-up and it doesn't have cash on hand to make significant IT investments
- Your organization can't afford large IT capital outlay. It needs to dedicate cash to a part of the business other than IT.
- Your organization prefers to have the option to switch application environments in the future

Ask the Right Questions

In your search for an ASP, it's imperative to check references. Don't expect the ASP to have many years of experience. But do understand their roots, staff expertise and committed partners. Inquire whether they have experience in implementing and managing applications, as well as monitoring and managing a network.

Most likely, the ASP contract you sign will be for a three- to five-year period. Therefore, it is critical for you to select an ASP that is willing to work with your organization as it undergoes changes during the time of the contract. To be better prepared when you begin discussions with an ASP, IDC has provided the following checklist of questions to ask:

- What applications does the ASP offer today or plan to offer in the future? Will this portfolio of applications be able to meet your enterprise's needs or will you need to contract with multiple ASPs in the future?
- How is the ASP delivering its service? Are partners involved? If yes, how tight are these partnerships?
- Where does the ASP obtain its application expertise?

- Does the ASP have the ability to integrate the applications it is renting with one another and with your existing application environment?
- How many dedicated ASP employees, including application, security and network operations specialists, are available?
- What are the SLAs provided, especially with regard to uptime and application access? Are penalties invoked if the ASP fails to meet these SLAs?
- What are the security measures taken to protect your data? What is the physical security of the data center, and the security of the network and the servers?
- What are the number and location of data centers?
- What type of support capabilities are provided? Who provides this support, and when is it available?
- What are the requirements you will need to have to access an ASP service?
- What is the average time to implement an ASP service?
- What are your exit strategy options, including the option to take the application in-house? Are penalties invoked?

Conclusion

The ASP market is here to stay. We expect the ASP market to undergo a series of transformations as suppliers seek ways to expand their service offering to appeal to a wider group of customers. However, the need to outsource the activities associated with application management is a fundamental driver that creates a continuous opportunity for ASP services.

Your challenge is to understand the options available when it comes to deploying and managing applications. ASPs provide benefits such as flexibility, attractive cash flow, release from IT human resource issues and rapid access to new application environments. However, there are some risks. ASPs today are fine-tuning what amounts to a new service offering. You must weigh the benefits with the trade-offs and assess whether the ASP service offering is right for you. ■



ASPs say it's the gold standard.

That's how the world's most successful ASPs describe the awesome application serving power of Citrix. Unparalleled performance for delivering UNIX®, Microsoft® Windows® and Java™ applications. For integrating existing and new applications into any standard Web browser. Instantly. All with enterprise-class reliability. And with over a decade of application server software expertise. More than 100,000 customers. Including 80% of the Fortune 500®. That's why more ASPs worldwide trust Citrix as the clear industry standard. To learn how you can join the gold rush in the Internet economy, visit us at www.citrix.com/computes/gold or call us at **800.644.9358**.

citrix



Digital
Independence

© Copyright 2001 Citrix Systems, Inc. All rights reserved. The Citrix, Now everything computes, and Digital Independence logos, including all related logos, are the trademarks, service marks and/or registered trademarks and service marks of Citrix Systems, Inc., in the United States and other countries. UNIX is a registered trademark of The Open Group in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. Java is a trademark or registered trademark of Sun Microsystems, Inc., in the United States and other countries. All other trademarks and registered trademarks are the property of their respective owners.



Now everything computes.

CITRIX



THE UNIVERSITY OF CHICAGO
LIBRARY
1100 EAST 58TH STREET
CHICAGO, ILL. 60637

DATE

TIME

BY

NO.

WWW.CHICAGO.EDU

But the copyright issue is just one piece of the puzzle. Unfortunately, Freenet also makes it easier to distribute such material as hate literature or child pornography. The program's proponents acknowledge this. Yes, they say, child pornography will be available, if that's what people want. On the other hand, voices of democracy will be able to speak loudly in countries suffering repression. So there are costs, but there are also benefits.

Don't underestimate Freenet just because it's being developed by an ad hoc group of volunteers. The same methodology produced Linux, one of the best operating systems available.

The most recent version of Freenet was posted on the Web earlier this month (<http://freenet.sourceforge.net>). As we reflect on its fallout, we should remember that a prerequisite for a successful strategy is to recognize reality. ■

DAVID MOSCHELLA

Microsoft losing in the court of public opinion

WILL MICROSOFT EVER make a smart move in its losing anti-trust battle? Even with its very existence now clearly at stake, Bill Gates and company are still sticking with the same strategy that has served them so poorly since the trial began: Demean your critics, deny any wrongdoing, attempt to rewrite history and warn of calamity if things don't go your way. If this mess is ever made into a book or movie, it should be called *All the Wrong Moves*.

The last few weeks have been perhaps the most damaging of all, or at least since Gates' terrible videotape testimony set the tone for this public relations megadisaster. First, the government's breakup plan was by a new play all accounts, well-thought-out. Sure, you can nitpick about small issues such as the proposal's "middleware" software restrictions. But given how sweeping the plan is, it makes a surprising amount of intuitive sense. Although most of the media attention has, understandably, focused on the proposed breakup, the various behavioral restraints are nearly as important. Taken together, they clearly provide a plausible path toward a more competitive software industry.

Indeed, even the mainstream press has found it relatively easy to see how the breakup might help. Why wouldn't the proposed new operating-

system company choose to enter the applications business and/or provide much more aggressive support to such vendors as Oracle, Lotus and Corel? Similarly, why wouldn't the proposed new application software company want to have its products run on such popular non-Windows operating system platforms as Linux and Solaris? This basic common sense helps explain why the government's position has been steadily gaining momentum.

In contrast, Microsoft has had plenty of time to respond to the government's proposals, but neither its public pronouncements nor its half-hearted legal counterproposal have impressed anyone other than its die-hard defenders. Like the media, Microsoft has also focused mostly on the divestiture issue, but its attempts to portray any breakup as an unmitigated disaster have generally consisted of groundless hyperbole. At various times, the company has warned that divestiture would be bad for its employees, the software industry, consumers and the country, but Microsoft has been largely unable to articulate exactly why.

Perhaps even worse, Microsoft has carelessly and foolishly squandered what little public credibility it has left. Anyone who has been around the

software industry for a while probably remembers how often Microsoft vehemently denied that its Office group enjoyed any special competitive advantages by being part of Microsoft. Now it's saying that cooperation between its operating system and application groups wasn't only extensive, but also actually a crucial part of its development efforts. Do they think we're all stupid? Or are they thinking at all?

Microsoft's best defense has always been that whatever its mistakes, the proposed breakup represents a disproportional response. Indeed, were Microsoft behaving in a sophisticated and responsible manner, I would tend to agree with this position.

The core of this case has never been about Microsoft's specific actions. It's been the company's inability to accept that those with special power sometimes have to play by special rules. If Microsoft had only accepted this early on, things never would have gone this far.

But the sad irony of this story is that, by behaving so defiantly and deceptively, Microsoft has given the government and other divestiture proponents the compelling rationale they otherwise never would have had. ■

READERS' LETTERS

Remember what your mother taught you

AS I SIT HERE watching my Outlook trash bin fill with "I Love You" messages for the second day ("Research Firm: The Cost of Love Could Reach \$10B," Computerworld Online, May 5), I wonder: Doesn't anyone remember what their mothers told them as children? "Don't take candy from strangers."

Here's a test. On your desk one morning is a strange glass containing a clear liquid. You don't know whether it's water or sulfuric acid. Do you a) dispose of it in some manner; or b) drink it, because although you're not thirsty, the liquid is clear and you can't see anything wrong with it, and besides, there's a "drink me" sign next to the glass.

Most people would choose a, but a surprising number of people would apparently choose option b.

The tens of millions of dollars of damage, lost

files and wasted IT time weren't caused by some adolescent's prank, but rather by millions of people whose thought process seems to be: "Let's see, I have 239 e-mail messages from different people, all with the same subject line, all with the same attachment, in some file type I don't recognize. I guess it must be important. I'll open it now."

Drink up,
Alan Brupke
Nashua, NH

No simple H-1B answer

I RECENTLY READ THAT President Clinton wants to raise the H-1B cap ("Clinton Proposes H-1B Visa Increase," Computerworld Online, May 11). Is this really solving the problem, or is it creating more of them?

The delay in issuing green cards isn't addressed. More people would come to the U.S. with H-1B visas, and then they could apply for green cards. However, due to the tremendous backlog and political

problems, green card applications keep on being delayed.

Sukanta Ganguly
Orem, Utah
ground@hotmail.com

Search made easier

THANK YOU for running the article "The Inevitable Workforce" about people with mental disabilities (Business, May 1). I'm in the process of trying to locate a job/career for my son, who has Asperger's autism and Tourette's syndrome. Articles like yours make things a little easier.

Name withheld by request
Atlanta

Substance over style

ONE OF THE benefits of working in a technical field is to be judged mostly on your skills and experience. To be told by non-technical buffoons what is and isn't appropriate to wear to work is infuriating ("The New Dress for Success," Business, May 8).

I would quit any job if

dress code held any type of importance. I'm sure there are plenty of other computer professionals who would agree.

David J. Lau
Santa Clara, Calif.
lauj@pac.net

The missing choice

I WAS A LITTLE miffed by a recent QuickPoll on the subject of H-1B visas on your Web site. The poll's options were to increase the H-1B visa limit, allow more green cards for permanent residence or do nothing. With no option to decrease H-1B visas, it seems like a biased poll to me.

Steve Ryan
Boston

More Letters, page 37

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Jamie Eckle, Letters editor, Computerworld, P.O. Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 679-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.





THE PERFECT
SERVER FOR A
COMPANY
WITH NO
ROOM FOR
ANOTHER SERVER.

DELL

Source: 1/99

ANDREW WILSON

Visa bill a relief for IT managers

THE INFORMATION technology industry is being forced to drive the U.S. economy with its brakes on because of one irrefutable fact: There's a shortage of skilled professional workers. The supply of high-tech workers is well below what the nation needs to sustain one of the largest economic booms in its history. Federal Reserve Chairman Alan Greenspan recognizes this problem and says one possible solution is to increase the cap on H-1B visas to allow more foreigners to temporarily work in the U.S. Many high-tech employers agree with Greenspan and are lobbying for a revision of H-1B regulations. Otherwise, unless Congress acts soon, our

economic boom may soon turn to bust.

Luckily, the pleas of high-tech employers have not gone unheard in Washington. On March 9, a bill sponsored by Senators Spencer Abraham (R-Mich.) and Orrin Hatch (R-Utah) cleared the Senate Judiciary Committee by an overwhelming 16-2 vote. The tone of the debate was less controversial than in years past, and



Andrew Wilson is an associate at the law firm Sorotkin, Hatch & Seidman in Buffalo, N.Y. He can be reached at awilson@seidman.com.

there was a general consensus that an increase in the number of H-1B visas is inevitable. The bill, known as the Hatch-Abraham H-1B bill, contains three key provisions:

- Increase the H-1B cap from 115,000 to 195,000 for the current and next two fiscal years. (On March 12, the Immigration and Naturalization Service announced that the cap had been reached for the current fiscal year, meaning no more H-1Bs will be granted until Oct. 1.)

- Exempt employees of higher education and research institutions from the cap, as well as foreign students graduating from U.S. schools with master's or doctorate degrees. (This won't affect many individuals but it will free up some H-1Bs for others.)

- Allow H-1B workers changing employers to begin working as soon as they file new H-1B petitions. (This provision is key because it allows people to start working for a new employer before receiving the actual H-1B approval. This will help companies who need IT workers to start immediately, especially in regions where processing times can be as long as five to six months.)

For corporate IT departments and high-tech employers, whose production has suffered because of a labor shortage that can't be fixed domestically when the number of bachelor's degrees awarded in computer fields has been de-

clining steadily, the Hatch-Abraham bill can't pass soon enough. Companies dependent on IT workers are becoming less competitive globally because they can't push their services or products to market as quickly as fully staffed foreign companies can. The worker scarcity paralyzes growth and increases production costs because companies can't staff their own IT departments. The bill addresses this shortage and will facilitate U.S. companies' success in today's global economy.

Given the nonconfrontational tenor of earlier discussions, the bill is likely to pass in one form or another.

President Clinton has proposed raising the cap effective with the 2001 fiscal year, which begins Oct. 1. No matter what form the Hatch-Abraham bill takes, it's a crucial short-term solution to a glaring problem, and companies should be able to benefit from its provisions before the next federal fiscal year. At a time when some groups, such as the Federation for American Immigration Reform, are arguing that the high-tech labor shortage is merely a myth, the Hatch-Abraham bill addresses the health of our economy in a practical and effective manner. ■

WILLIAM M. ULRICH

IT has a big role in a virtual world

INFORMATION TECHNOLOGY, through desktop systems, networks and the Internet, has penetrated every corner of the enterprise. Business units are building e-commerce sites, launching supply-chain alliances and spinning off e-businesses. In this virtual world, the old-guard IT department, with its Industrial Age, hierarchical management structure, resembles a relic of a bygone era. Is the IT department as we know it becoming irrelevant?

That idea might seem ludicrous at first, but the symptoms are there. Technology is emerging that facilitates Web-based access to legacy data and business rules, ultimately allowing business units to bypass IT operating environments. Vendors are targeting their sales pitches at business units because they have larger budgets. Business units have taken over many application management tasks, and a variety of IT core competencies are being outsourced. Most of all, the Internet and intranets have subverted the hierarchical IT management model. Informal communication among entities is replacing formal chains of command and sidestepping old lines of authority.



William M. Ulrich is a management consultant and president of Tactical Strategy Group Inc. Contact him at info@tsgroup.com.

According to *The Chuetron Manifesto* (Perseus Books, 2000), today's organizational chart is "byperlinked, not hierarchical." Management hierarchies are breaking down just as IT functions are being taken over by vendors and non-IT business units. A few of my colleagues believe that IT as we know it will fade into obscurity. But I'm not ready to accept that: IT still has much to offer, whether businesses realize it or not.

IT still owns the data, computing power, operational systems, technical know-how and disciplines critical to the effective management of information on a large scale. But change is coming. And I believe IT must spearhead efforts to re-engineer information management across the enterprise. IT must reinvent itself so that the information management skills that have matured during the past few decades are not released through trial-and-error processes that end up costing companies money, people and their futures. As IT reinvents itself, these disciplines should be preserved and applied to the new organizations.

Change will be painful. The management hierarchy chart needs to be tossed aside so that IT can reinvent itself by creating an organization that can collaborate and adapt to business dynamics and technical innovation.

The concept requires modeling information management functions after the way they really work and making the transition from the old hierarchy to this new model. For example, the business units responsible for supporting applications should be organized into an application hub (or working group) structure that clearly delineates responsibilities. Each application hub could make enhancement or replacement decisions, restricted only by the impact they might have on related applications or architectures. Each application support hub could then be linked to an application management hub comprising representatives from each business unit. This hub would make cross-functional decisions to deploy packages, develop interfaces or pursue integration initiatives. Other hub structures under this framework encompass a variety of IT functions such as environmental support (facilities, communications and networks), architecture (data-, system-, network-, method- and tool-related structural issues), the project office and internal consulting. e-business functions and the supply chain.

Under this model, working groups can implement decisions free from the command-and-control hierarchies that tend to stifle collaboration and adaptability. Each area sends representatives up to the next-level hub to collaborate on decisions that can't be made at a more granular level. Centralized hubs set strategy, make cross-functional decisions and verify that IT disciplines are being deployed throughout the infrastructure.

At the center of this is the IT advisory council, comprising representatives from internal and external groups responsible for information management across the enterprise.

We can either fight this evolutionary shift to a collaborative, adaptive management structure or formalize a working model that reflects the new reality of information management. ■

READERS' LETTERS

Reader: Microsoft backers overlooking company's past behavior

WHAT ALL THE Microsoft apologists seem to keep ignoring is that Microsoft used coercion to get hardware makers to privilege its products in software bundled with computer purchases ("Users Largely Skeptical of Government Plan to Split Microsoft," *Computerworld* Online, May 11).

Will a breakup improve or increase competition? I'm not sure, but I hope that it gets people looking at shifting to Linux and to software applications that run on Linux platforms and that it will press Microsoft to the point at which its applications (for those who really want them) are offered in Linux versions.

Once Windows took over and everyone flocked to Microsoft applications,

the creators of other once-fine programs like WordPerfect went so far in the direction of copying and emulating Microsoft Word and other Windows applications that these programs metamorphosed into even dunkier facsimiles of the Microsoft applications.

Some of these programs were once elegant and functional, with a significant degree of control for the user. I am sick to death of turning off the automated features in Word only to have them come back, and of formatting that requires multiple steps because the application wants to repeat your last step for you. It's bloody annoying much of the time to use these applications.

David J. Lahad
Northampton, Mass.

Wage difference doesn't compute

I APPRECIATE YOUR timely article ("White House: Women Still Underrepresented in IT," *Computerworld* Online, May 11), but since I first found out about a wage difference years ago, I still don't understand it.

Can someone tell me why, just because of my sex, I am not to be paid as much as a man and why this continues? I'm not being sarcastic; I really want to know why this disparity exists. Was there at one time a reason for this discrimination?

One thing that came across in the article, though, was that I should be grateful that I am in IT, since the disparity there isn't quite as bad as in other areas. Do you think if I had an operation I could get a raise?

Sandra Lieber
Senior systems programmer
Iowa City

Companies are using wrong approaches to finding IT workers

ACCORDING TO "Report: Half of IT Job Openings Will Go Unfilled This Year" (*Computerworld* Online, April 11), a study by the Information Technology Association of America found that U.S. companies will be able to fill only half of the IT positions open this year because of a shortage of workers with the appropriate skills. However, the ITAA may have missed a very important point.

Job descriptions are unrealistic, and titles do not match jobs. Moreover, companies are stubbornly looking to fill their needs with employees when

there are few looking for such jobs. Meanwhile, there are many talented consultants who are more than qualified to fill many needs but are currently out of work.

Companies should determine what their needs are, be realistic in what their expectations are, break down the jobs into realistic parts and then go and get the appropriate personnel to help them. That means using consultants where appropriate and paying appropriate rates for consultants and appropriate salaries for employees.

Richard Kuper
Business and Automation Consulting
New York
President@RLK.com

Not the best judge of spam

REGARDING YOUR May 8 article "Defining 'Spam' Technically Isn't Easy" (*News*), BigStar Entertainment probably isn't the company to ask to define spam. They're spammers, and they're listed in Mail Abuse Prevention System LLC's Real-time Blackhole List.

Tim Boyer
Levittsville, Ohio

With the click of a mouse...

I DON'T ENJOY GETTING spam, and I don't spam. However, spam isn't nearly as big a pain as junk mail sent through the U.S. Post Office. I have to open it to find out it's junk, then put it in the trash, and later carry the trash out. As for spam: click, click, and it's gone.

Larry Keatts
Richardson, Texas

Widening 100 Best a good idea

I WAS DELIGHTED TO LEARN that you have revised your criteria for the *Computerworld* 100 Best Places to Work list to include privately held companies this year.

Best Places has become an important benchmark for the IT industry. Because most readers don't stop to assess the criteria, but only look at the companies in the list, exclusion from the list sends an implicit message, regardless of the true critical measures in the evaluation.

Christopher B. Lufgren
Chief operating officer
Schneider National Inc.
Green Bay, Wis.
lufgren@schneider.com

End of dot-coms exaggerated?

BECAUSE TO MARYFRAN JOHNSON on her "Dot-com Bashing" editorial (*News Opinion*, April 17). Forrester Research has a lot of nerve reporting that, all of a sudden, most dot-coms will be washed up. Aren't

they the same ones who are reporting that billions of dollars are going to be spent on e-commerce?

Lisa Syring
Director of marketing
Cadman Corp.
Thousand Oaks, Calif.
sales@cadmancorp

Correcting some FTP errors

YOUR OVERVIEW of file transfer protocol (FTP) in your April 17 Technology QuickStudy was quite good but contained a couple of impossible phrases: "... convert the data into 8-bit ASCII format." No such thing. By definition, ASCII is a 7-bit code.

And: "... over IP connections." No such thing. IP is a connectionless packet-based protocol. TCP, sitting on top of IP, is the thing that provides the notion of a "connection."
Warren Spencer
Automated systems analyst
Alcan Aluminum Corp.
Oswego, N.Y.
warren.spencer@alcan.com

If you get them to come,
will your Web site be ready?

SAS e-Intelligence.

www.sas.com/cw/e-ready

The Power to Know SAS

Sitara Networks is 1st to enable e-business networks.

to move on a hot new market

to deliver a QoS appliance solution
Worldwide

to integrate bandwidth management
and caching

to intelligently integrate applications
and networks.

QoS solution with a flexible hardware and
software architecture

to deliver a consistent Quality of Service
across a wide range of speeds and feeds

to deliver a complete and powerful QoS
solution to the market

practical and easy QoS solution

to guarantee benefits of product —
or your money back

**Sitara Networks
is a hot new mover
with hot customers
and partners like—**

Citrix

Bose

AOL

Primus

Sumitomo

eGain

Progress Software

Data Comm Systems

Intel

Data Accessories

Aristasoft

Equinox

Shouldn't you be associated
with the industry leader?



SITARA
Networks™
Making Networks Smarter

BUSINESS

MARKETPLACE OR MONOPOLY?

The development of an online business-to-business meat exchange has sparked a battle in Minnesota. A group of farmers calls it "the OPEC of meat." Similar accusations are being lodged in several industries as the lines start to blur between legitimate online marketplaces and crippling cartels. **42**

FREE TRADE

The competition for stock trades has grown so fierce that some Internet-only newcomers are offering free services. It's a move that some analysts predict could have an impact on the market, but it could also fall flat. **45**

COMEBACK KID

Do brick-and-mortar companies stand a chance against their on-line competitors? Reginald S. Foster, the newly promoted electronic-business chief at American Management Systems says he thinks so. He talked about their comeback — or what he calls "the revenge of the dinosaurs" — in a recent interview with *Computerworld*. **48**

VIRTUAL CRITICS

What exactly are online shoppers looking for? To find out, some top Web retailers have turned to outside critics that go straight to customers with such questions and then help the companies figure out where their e-commerce operations need improvement. **40**

RESHAPING REALITY

It's time to shake things up and flip the equation for developing new technology, writes Jim Champy. Rather than identifying a problem and then looking for a solution, businesses must learn to spot the potential of new technologies and then find problems to solve with them. **47**

TO INC., OR NOT TO INC.?

It's a common question for contractors: When, if ever, is the right time to incorporate? Consultants and tax experts explain the pros and cons of incorporating. **61**

PRODUCT PARTNERS

Not long ago, vendors launched a new product and stepped aside. But in today's fast-paced market, they're increasingly partnering with corporate customers to create the most effective tools. Here's what you can expect from these new relationships. **62**

VALUE CHAINS

As businesses move toward value-chain management, they're finding that the necessary tools and the implementation process are expensive. But experts say it's well worth the cost. **64**

MORE

Workstyle.....	47
Carvers	56
QuickStudy	64
Carver Advisor	65

PERKS LIKE COMPENSATION
way to keep IT staff happy
Alan Atkinson • 70



IT EMPLOYEE WISH LISTS

WITH JOB TURNOVER AT RECORD LEVELS, trust, training and access to technology still top the list of what keeps IT workers happy and on the job. Unfortunately, too many managers still aren't getting the message. So *Computerworld* asked IT professionals what advice they would give their bosses on how best to hang onto them. Find out how your retention program stacks up against what IT workers really want.

56

The expertise of
1,000,000 hours of
MTBF reliability...



	Lubert's Windy Computer		Lubert's Windy Computer	
Scalable				
Configurable UPS up to 180kV redundant				
Max # of Battery Modules	11	4	Redundant System Circuitry (Full Functionality)	Y N
Max # of Power Modules	6	5	Redundant Power Modules	Y Y
Max # of Complete System Control Modules	2	1	Redundant Battery Modules (all kVA sizes)	Y N
			Redundant Monitoring Options	Y Y
Intelligent				
Self-diagnostics monitors operating environment and isolates faults from loads	Y	partial		
IntelliLibrary™ module automatically predicts cascading failures	Y	N	Alerts	
Intelligent bypass technology provides seamless bypass operation	Y	N	Ships Pre-Assembled and Pre-Tested	Y N
			Largest factory service organizations with 24x7 call center support and dispatch	Y N
			Maintenance System Option	Y N

Easily scalable,
incredibly intelligent,
remarkably redundant
UPS that takes
systems availability
to the next level.

Scalable

- Hot-swappable modules
- Build up to 16 kVA redundancy
- Configure Battery back-up time from over 6 minutes up to 72 hours
- Small footprint

Intelligent

- Self-diagnostic components
- Internal battery monitoring
- Fault-tolerant design
- Intelligent bypass technology

Redundant

- Redundant system controls (Full Functionality)
- Redundant Power modules
- Redundant Battery modules
- Redundant Monitoring options

To find your local Liebert
Representative or VAR:

800-877-8222 dept. NF1

www.nf.liebert.com

nf@liebert.com

Liebert
POWER BUSINESS BY BUSINESS®

Read all about *Nfinity*™

Visit our website and download a Free White Paper, "The Anatomy of a High Availability System" at www.nf1.liebert.com. You can also learn everything there is to know about Liebert. In a nutshell, we're a pioneer in the power protection industry, entering the market over 30 years ago. Since then, we've installed millions of systems worldwide. Our extensive product line is second to none, as is our comprehensive Liebert service. Interested? Good. See you at the site.



Liebert
POWER PROTECTION IN EVERYTHING™





...now available
in a scalable
4-16 kVA UPS -
the new *Nfinity*.

Introducing the easily scalable, incredibly intelligent, remarkably redundant UPS that takes systems availability to the next level.

For over 30 years, Liebert has provided power protection for the world's most critical systems. We designed the new *Nfinity* UPS to carry on the tradition of Liebert reliability in today's critical network applications.

The modular design allows you to configure *Nfinity* to match your changing power needs, and all modules are hot-swappable, allowing for uninterrupted performance when you service or expand the system.

You'll find redundancy and patent pending intelligence features in the power and battery modules, power bypass system, communication paths, and system controls. No other UPS achieves that tremendous breadth of reliability.

Nfinity offers superior value. It's extremely cost-efficient to operate and ships preassembled and pretested, eliminating costly user assembly time. You're also backed by Liebert's service organization - trained and staffed to support you 24x7x365. For complete product information, visit our website at www.nf1.liebert.com.

To find your local Liebert Representative
or for information on becoming a VAR:

800-877-8222 ext. 881

www.nf1.liebert.com

info@liebert.com

 **Liebert**
KEEPING BUSINESS IN BUSINESS.®

Antitrust, Monopoly Fears Haunt B-to-B Exchanges

Web site developed by meat companies latest to face questions of price fixing

BY BRIAN BULLIVANT

THE OUTCOME OF a battle waged by a handful of farmers in western Minnesota against what they call "the OPEC of meat" may determine the rules for how online business-to-business exchanges will work.

At the center of the opposition against an exchange being developed by IBP Inc., Tyson Foods Inc. and Cargill Inc. and its subsidiary Facel Corp. stands 51-year-old Doug Peterson, farmer, school teacher and Democratic representative to the Minnesota Legislature.

"We have monopolies being created," Peterson said. "This OPEC, or cartel, is formed from the six largest producers of meat. It raises red flags."



[The cartel] raises red flags.

DOUG PETERSON, MINNESOTA STATE REPRESENTATIVE, COMPARING AN ONLINE MEAT EXCHANGE TO A MONOPOLY

Peterson said the exchange will lead to price fixing and an elimination of competition, and force farmers to sell to just one company.

While spokesmen for the meat processors dismissed monopoly charges, others said the situation in Minnesota reflects a larger issue facing many existing and proposed exchanges: How do they violate antitrust laws?

Investigations, Hearings

"It's a hot topic," said Richard E. Donovan, head of the antitrust practice at Kelley Drye & Warren LLP in New York. For example, he said, the implications of business-to-business exchanges dominated conversations at the annual antitrust convention of the American Bar Association in Washington last month, despite the high profile of the Microsoft Corp. decision.

In the meantime, the following events have erupted to drive the issue:

- The Federal Trade Commission (FTC) and Department of Justice are looking at an exchange planned by General Motors Co., Ford Motor Co., DaimlerChrysler AG, Renault SA and Nissan Motor Co. The exchange is on hold until after the investigation, Ford spokeswoman Fara Warner said.

- The American Society of Travel Agents (ASTA) has asked federal officials to investigate an exchange by Delta Air Lines Inc., Continental Airlines Inc., Northwest Airlines Inc., United Air Lines Inc. and American Airlines, said Paul Ruden, senior vice president of legal and industry affairs at ASTA. Ruden's group charges that by posting special fares only on their Web site, not with travel agents, the airlines are violating antitrust laws.

- The Senate Commerce Committee announced Tuesday it will hold hearings on airlines, travel and the Web.

- The FTC also plans to hold an antitrust workshop on exchanges June 29.

FTC Director of Policy and Planning Susan DeSanti said the commission needs to know the business rules behind business-to-business exchanges.

"I think we are where we are precisely because this is a relatively new phenomenon, and we would like to know more about it," DeSanti said.

"This is a new world for everyone," Warner agreed.

Everyone may, except for Peterson. Pete Takash at the Minnesota Farmers Union and Tom Smalley, a Democratic Party spokesman in Minnesota. The three say the exchange means trouble for farmers.

"Our concern here is that if you get six of the largest meat companies together in what basically amounts to a joint marketing effort, cooperating closely, they will be able to exchange information on prices and sales," Smalley said. "They'll be getting out of each other's way so they don't have to compete with each other."

The result, the Minnesotans predict, will be that meat processors dictate prices, punish opposition and monopolize meat production and distribution. Takash said the producers already have a huge impact on U.S. production; the exchange would just increase it.

"It is another way that they can go out and do business. But

from the farmers' perspective and from the point of view of people who are trying to keep these communities together, it sure doesn't help," Takash said.

The processors, which collectively reported \$30 billion in sales last year, reject the charges and say there will be no collusion, said Excel spokesman Mark Klein.

"We are going to be aggressively out there trying to take business from each other," he said. "This is a fiercely competitive business."

Room for All

According to Klein, the exchange will actually help competition. Smaller, niche processors can join the exchange and get access to many more farmers.

The exchange will be an independent company owned by each of the six companies but open to anyone. It will streamline the buying, selling, shipping and trucking of products.

Exchanges, page 44

Utility Juices Up Online Bill Payment

Launch sparked by new competition

BY MATT HAMBLEN

In just six months — a breakneck pace even for the newly competitive utilities industry — Northeast Utilities set up a new system that lets its electricity customers pay bills via the Internet.

"Several thousand" Northeast customers were using the online system as of this month, just two months after it was launched, said Daniel Chagnot, the information technology manager for the project.

"From concept to getting it actually working was six months, and that's an unheard-of thing in the utilities industry," which is typically known for its bureaucracy and plodding pace, said Patricia Mulholland, project manager of customer service operations at Berlin, Conn.-based Northeast, which serves 17 million business and residential customers in New England.

Mulholland attributed the speed of the rollout to weekly meetings between Northeast's

staff and its technology partners, Mobius Management Systems Inc. in Rye, N.Y., and CheckFree Corp. in Atlanta.

While the price tag for the new system was \$500,000, that much is expected to be saved in just one year because the system allows Northeast to store digital images of bills on servers rather than on costly microfiche, said Chagnot.

While the pace of implementation was notable, Northeast's new system is far from unique. According to analysts, several large electrical utility companies in the U.S. allow customers to pay bills via the Internet (see chart). The trend toward electronic bill presentation and payment in utilities is about 6 months old and illus-

trates the new competitiveness among utilities players, said analysts.

"Utilities have been as backward as companies come in the industrial world," said Ethan Cohen, a utilities analyst at Aberdeen Group Inc. in Boston. But deregulation, now in place in some form in 23 states, has sparked more initiative within the industry, he noted.

A recent survey conducted by Gartner Group Inc. in Stamford, Conn., looked at 150 companies across five major industrial sectors in the U.S. It found that while "utilities have been the most behind in e-billing, they are now the most aggressive" in setting up such systems, said Gartner analyst Avi-Yahav Litvin.

Mulholland said competitive pressures from other utilities certainly played a role in pushing the electronic bill presentation and payment project at Northeast, but customer feedback also contributed to the decision.

A recent Northeast survey of 1,000 customers showed that a surprisingly high 10% would be interested in online payment, Mulholland said. ■

Utilities Players

Some utilities offering online bill payment include:

- Northeast Utilities, Berlin, Conn.
- Pacific Gas and Electric Corp., San Francisco
- Boston Edison, Boston
- PECO Energy Co., Philadelphia



YOU HAVE MAIL

And these days it can clog your network with spam and huge attachments. Or disable you with viruses. E-mail exposes your network to a variety of performance problems that can send user productivity down the drain.

Content Technologies enables you to automatically block undesirable e-mail attachments from entering or leaving the network. You'll also protect your company from legal liability by preventing the circulation of offensive e-content.

If e-mail is the lifeblood of your company, rely on Content Technologies to keep it flowing.

Get a free evaluation copy of our MIMESwapper software along with our "Guide to E-Content Security" CD.

www.contenttechnologies.com/ads (888) 888-6883

© Content Technologies 2000

content
technologies

Continued from page 42

Exchanges

Klein said buyers and sellers will be able to work under one system and comparison shop for the best prices and bids on their products.

According to Cargill spokesman Bill Brady, the operation was designed simply to build greater efficiency.

But Smalley, who worries that the exchange will reduce the number of potential buyers, said competing buying stations around his state have already begun to close, although he didn't have specific numbers to show a trend.

Some Legal Advice

Antitrust attorney Mark E. Plotkin at Washington-based Covington & Burling said if the exchange sticks to the model it describes publicly, it might survive the antitrust allegations. Existing laws that govern joint purchasing agreements between competing companies could apply to the Web, he said.

Plotkin said a strategy he outlined for his own clients looking to create business-to-business exchanges includes the following:

- Keeping the exchange independent, possibly run by an outside consulting firm.
- Maintaining anonymous bidder identities.
- Ensuring that pricing information represents real-time market conditions. If prices are forecast, companies must prove why this is needed.
- Information posted must be limited. In the early 1990s, for example, a group of airlines used information posted in a joint venture as a secret code signaling inside information about prices and trends. The federal government stopped the practice.
- Membership must be open. For instance, groups of farmers could join to sell products to the processors en masse.
- The financial information collected by the exchange must stay confidential. Shared information allows members to fix prices, he said.

But not everyone thinks that these kinds of precautions will be enough.

"It might look innocuous, but it could lead to collusion," Peterson said. "I would really question that they are not going to cheat."

Eventually, the courts most likely will dictate how exchanges work, predicted Ross Petty, a professor of marketing law at Babson College in Wellesley, Mass.

"It is pretty clear that we are

going to have a lot of these things, and I think sooner or later, the antitrust people will find someone to sue because the temptation to cheat on these things is pretty strong," said Petty, who also worked at

the FTC for 10 years.

And the consequences of cheating are high, Plotkin said. In addition to civil liabilities, companies and officers could be subject to criminal penalties.

"That's the first thing we tell our clients," Plotkin said.

In the meantime, Peterson and others say they will continue to hold protests and rallies, trying to stop a business-to-business juggernaut. ■

that it can dynamically and

critical information across a Global Enterprise.

For more information visit <http://www.ragingknowledge.com>

Competition Brings Stock Trading Costs Down to Zero

BY MARIA TROMBLY

Two new players in the online trading arena have brought the price of buying and selling

stocks down to nothing, but traditional online brokerages say they aren't worried about the competition.

The latest entry, debuting this month, is Financial Cafe.com in San Francisco, which offers free trades, free quotes

and no order minimums. The company is competing against Freetrade.com, a no-frills broker that Omaha-based Ameri-

trade Inc. launched with no fanfare last month.

"Our philosophy is free with quality, not free and cheap," said Andrew Koslow, Financial Cafe.com's chief operating officer. He said the company aims to have one representative for every 300 customers—five times more than the industry average.

The company is able to keep stock trades free while still maintaining a high level of customer service because it has profit-sharing deals with electronic-commerce firms and charges for some of its services, according to Koslow.

By comparison, Freetrade.com has no live phone support, only e-mail help.

New York-based American Express Co. also offers free trades but requires at least a \$25,000 balance for free stock buys and a \$300,000 balance for free sales of stocks.

But the company isn't worried about competition from the start-ups, said spokesman Dave Kanihan. At the American Express site, customers get access to e-mail and telephone support, financial advisers, proprietary searching and online financial planning tools. Financial Cafe.com offers telephone and e-mail support but no advisers.

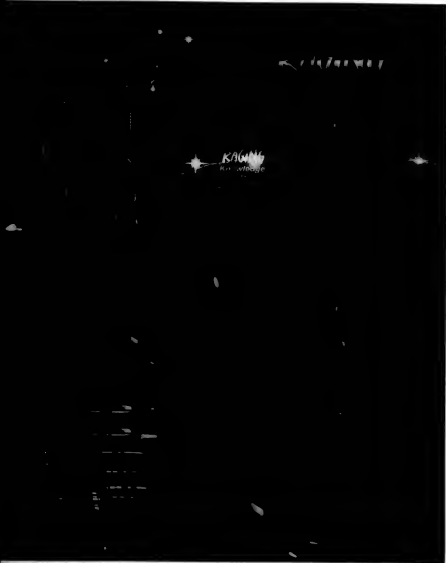
Although it's too early to tell, there's a sense that free trading may be a niche market. But the presence of these services might drive prices down across the board.

"I don't see this becoming an instant success overnight," said Richard Repetto, an analyst at Lehman Brothers Holding Inc. in New York. "But if these things gain traction, the commissions can go down."

The biggest challenge that lies ahead for online advertising and e-commerce partnerships is to prove themselves as reliable sources of cash, a difficult task since customers have grown accustomed to a broad variety of services from their brokers.

"You can get initial public offerings," said Russell Keene, an analyst at New York-based Keefe Bruyette & Woods Inc. "You can get insurance, you can get mortgages, [and] soon you'll be able to trade overseas."

"I think the product differentiation and service differentiation is enough not to frighten the more established players, quite frankly," Keene said. ■



AMS's Foster Blends Bricks and Clicks

Last month, American Management Systems Corp. (AMS) promoted **Ronald S. Foster** from his slot as chief e-commerce officer

to the newly created post of chief electronic-business officer. He supervises all internal and client e-commerce activity of

the Fairfax, Va.-based systems integrator, which says such activity made up 40% of its \$1.4 billion in revenue last year.

In a recent interview with *Computerworld's* Julia King, Foster discussed his new role and what he sees on the electronic-business horizon at traditional brick-and-mortar companies.

Q. What does a chief electronic-business officer do?

A. The responsibilities range from business development support to project execution. It extends to deal-making and alliances.

Q. What's the difference between a chief e-business officer and a chief e-commerce officer?

A. I have been using the terms pretty much synonymously. Most people do. But e-commerce is just transactions being executed online. E-business has a much broader definition. The true issue du jour isn't e-commerce, but how to establish and maintain true competitive advantage.



RONALD FOSTER,
American Management Systems

Q. What does it take to be a successful e-business officer?

A. We have seen a direct correlation between the success of the e-business officer and how closely they report to the CEO. The reason is that the issues that need to be tackled are CEO-level issues.

Q. Does that mean the CIO?

A. CIOs and CTOs are not well-positioned to drive the change that's required. I don't know of a CIO who has gone to a strategic business unit head and said, "Guess what? You're out of business."

Q. Do you foresee others dismantling traditional businesses?

A. I see a phenomenon I call the revenge of the dinosaur. At major corporations, people in the executive suite see that real business is going to be taken away from them [online].

But when you analyze the situation, they have a lot to work with. They have money and aren't subject to the fickle whims of venture capitalists and the stock market. They also have enormous brick-and-mortar assets that can be leveraged to their advantage. So what I think you're going to see this year is legacy organizations fighting their way back into the game, and in 2001, we will see some interesting situations where they win in over-time. ▀

Online success

There's no guarantee, especially if you're trying to do all the heavy lifting yourself. How can you make your business an online powerhouse? How can you deploy applications quickly so you can focus on your core business? Simple: Pick an expert application service provider. One who delivers excellence from high-availability Web hosting to complete Internet applications, hosting, management and rentals. A company designed

for real-world

business goals delivered in real time. Just ask companies like Sony.com, Pizing, Bull, AltaVista, Catalog City, and Toysmart.com. They're all reaping the online success for their Web

business

For more information, call 1-800-441-4411 or visit us online at www.ams.com

WORKSTYLES

What It's Like to Work at ...
Delta Technology Inc.

Interviewer: Walter Luddy, developer of MYOBTravel.com, a travel planning and reservations site that will cater to small businesses with up to 50 employees. The site is tentatively set to launch by August.

Company: Delta Technology Inc., the information services arm of Delta Air Lines Inc. and a wholly owned subsidiary of the airline.

Main location: Atlanta.

Number of information technology employees: 2,000. Live on the MYOB travel.com project.

Number of employees (and users): 70,000.

Tenure in current position: About one month.

Last position held: Worked as a developer on Delta's Gate & Boarding team. "We analyzed [the gate staff's] work processes and decided they needed new workstations and software ... so they could spend less time behind the computer and more time actually communicating with passengers. We put in Windows applications that let them monitor seat inventory in real time and allocate seats using a Visual C++ chart and an interactive passenger list."

How common are career moves within the company? "There's a Web site available to everyone in the company, where new jobs are posted, and you can move laterally that way. Or you can bring it up in your biannual review like I did."

Workdays: "I might not be the norm, but I get up at about 7:30 a.m. and stay until 6:30 or 7:00 p.m. We have a 10-hour day, four-day work option here, but I work five days. My projects are usually cutting-edge, and you just have to do what it takes to meet the deadlines."

What has the payoff been? "This is my fourth year here, and I've always tried to put myself in the position of learning a new skill set every year. I started as a business analyst in electronic ticketing, and I learned to build SQL databases. For Gate & Boarding, I learned C++ and object-oriented programming, and then I was promoted to technical lead. By the end, I was handling project management, re-

sponsible for rolling out a new component of the airport renewal project. For this project, I'll be learning Java."

Bonus program: An employee stock purchase plan, annual bonuses based on merit and companywide performance and spot bonuses.

Dress: "When we rolled out our new Gate Information System, we did a simulation with life-size cardboard cutouts of celebrity passengers."

...I have Ted Turner in my cubicle."

Any windows? About 50% of the staff have windows, one side of the building overlooks the airport runways.

Dress code: Business casual. "There are very few renegades; it's a fairly conservative atmosphere."

On-site day care? No.

Office mascot: "When I was on the Gate & Boarding project team, it was the Bucklewar Whizzpuzz! guys - we always greet each other like those guys."

P perks: "Managers can allocate team rewards for meeting project milestones, like tickets for everyone to a Braves game or cocktail hours."

Travel benefits: "We get a certain amount of free domestic and international flights each year, so you can jump on a plane whenever you feel like it. If there's a seat available, I have a lot of friends in the company, and we've gone for weekends in Paris and Amsterdam. And I just went with a group to Machu Picchu. We delivered 12 computers to a school there and then went up the Amazon River to deliver medicine, clothes and books to a man who's building an orphanage in the jungle. Three of us from Delta Technology went with 10 others from a relief organization."

Would employees feel comfortable e-mailing the CEO? "I don't know, but I wouldn't hesitate to e-mail the COO, Bob DeLoedes. He's been here about a year now and has made a point of introducing himself to everyone."

Quote: "I stay here because we get to touch any kind of technology that's currently available anywhere." - Leslie Goff

Wireless dreams

JIM CHAMPY

IT'S HARD TO PREDICT which technologies will truly change the way we work, dramatically improve productivity or otherwise radically affect the human condition. That's because we think deductively: Define a problem, then find a solution. Forecasting the real impact of technology requires inductive thinking: Recognize a new technology's potential, and then find a problem it might solve.

We often see a new technology as a new version of something that already exists. The automobile was first seen as an extension of the horse-drawn carriage. Xerography was seen as an extension of carbon paper. Even the Internet was originally seen as an extension of the local-area network. Their eventual epic impacts on our lives was unforeseen.

Such is now the case with wireless technologies. The cell phone, for example, was first seen as an extension of the telephone. When I think of wireless, three images come to mind: I think of waiters, a banal TV ad and Peter Dinklage.

My first experience with wireless came before the cell phone explosion, when I watched a French waiter use a portable device to approve a credit-card charge without leaving my table. I was impressed, but the French have often led in the application of IT. This early wireless use was a response to a known problem: Many Europeans have a phobia about letting credit cards out of their sight.

A more recent image of wireless comes from a recent TV ad: A group of thirtysomethings is seen riding down a beach in an open convertible, sending information to a prospective customer over some sort of wireless device. A response arrives, telling them that they have just won the deal, beating out older competitors, who are pictured sitting in an office, challenged by their organization's inability to respond to the prospect in a timely fashion. Too late — the kids win, and life's just a beach. The ad trivializes what's possible with wireless technology (while suggesting that success is a function of generational difference).

The reason we're challenged to find new, more powerful applications for technology is that we see the world and technology through our current work and management processes. At the TV ad illustrates, a prospective customer's request for proposals brings the same response — only deliv-

ered a bit faster through wireless technology. We don't see how a new technology might change, or even eliminate, proposal processes. Today, combinations of technologies — the Internet, data warehousing and wireless, for example — have the power to create whole new business models such as the industry-sponsored digital marketplaces now being formed in the automobile business.

So, how should we start to think inductively about wireless? Management guru Peter Drucker may have pointed the way to the wireless world when he first used the expression "manage by walking around." What he meant was that managers could learn more by meeting and talking with customers and noncustomers alike.

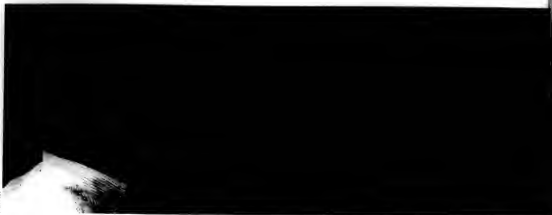
Imagine, for a moment, a manager — or a salesperson — who works outside an office, enabled by a truly powerful intelligent agent. Some of the rules and behaviors of business could be broken. One is that all employees need offices. Another is that the way you do business should be governed by the limitations of systems. A communications device, combined with access to rich information and timely human decision-making, can change rigid business rules. Product information becomes immediately available, price quotes are dynamically tailored to a customer's needs and delivery is accelerated as time is further compressed across all fulfillment processes.

At the behavioral level, it might now be easier to let more people get out of the office to spend time with customers, where they can do real work. The power of human potential might also be restored.

Dream on, you say? That's part of inductive thinking. ■

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. He can be reached at JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.





Constructive

“A BSTRACT CONCEPT: That's about the best way to describe the process of designing and maintaining an effective e-commerce site today.

That's because no one knows exactly how to take what customers want and parlay it into how Web pages are designed. So leading e-commerce companies have learned how to make the process of Web site design and customer satisfaction a little less abstract by asking customers exactly what is and isn't working: Can they find product information quickly and easily? Was their order delivered on time?

To answer those questions, many organizations are turning to outside monitoring agencies. Such firms often provide a way for customers to give feedback about the design of a page, the overall buying experience or whether their orders were actually delivered on time, through both statistical and anecdotal means.

This is valuable information for

E-commerce leaders are going outside to performance monitoring agencies to make their site designs more appealing and to improve customer satisfaction.
By Mathew Schwartz

companies. Not only does it alert them to potential problem areas, but it also gives them insight into the nature of those problems. Furthermore, the information can help drive the changes necessary to make a fix. Companies can then tell the customer that a change was made, closing the loop and hopefully inviting the customer, who has given them free advice, back to make another purchase.

Traditionally, companies have used focus groups to assess the pros and

cons of site design and product selection as well as customer satisfaction with order fulfillment. But using focus groups to identify and correct a problem is a slow process. A Web site problem, once known, might only require a few minutes of coding to fix. So e-commerce retailers are supplementing focus groups with more immediate feedback.

Here's a look at how three companies use feedback data to drive e-commerce improvements.

STAPLES.COM:

Making Metrics From Anecdotes

E-commerce companies have an abundance of data. Site logs track where visitors go, which pages are most popular and how many customers return. E-commerce engine logs track repeat customers and the average price per order.

But translating that data into action items isn't so simple. "I think a lot of companies are overwhelmed" by the amount of data they collect, says Jackie Shoback, vice president of operations at Staples.com, the e-commerce arm of Staples Inc., the Framingham, Mass.-based office-supply retailer. "We're fortunate that we're click-and-mortar," she says, because Staples has been analyzing customer satisfaction for years.

Staples.com subscribes to a service from BizRate.com in Los Angeles that lets customers give feedback about the site they're using. Fulfillment is a crucial e-commerce variable, and it's not something that necessarily shows up on a site log.

e-Web Critics

With BizRate, a browser window pops up and asks customers if they'd like to rate the site from which they just purchased a product in the following areas: ease of ordering, ease of navigation, appearance, product selection, product information and pricing. Shoppers can also opt to take part in a follow-up survey. When the customer is expected to receive his shipment, BizRate sends an e-mail with a link to an online survey, where the customer can rate delivery time, product representation, customer support, privacy policies and shipping and handling. In both surveys, customers can offer additional anecdotal feedback.

"The actual raw data scores are great, but... it's the comments, and drilling into those and further categorizing them and finding the common answers, where you can improve what you can do," says Shoback.

One member of the Staples usability team collects all customer comments and turns the anecdotal data into metrics. Those metrics are then categor-

ized into function areas and forwarded with the anecdotes every Monday morning to a cross-functional team with members from information technology, marketing, usability and corporate areas. The team then holds a top-level review to flag which departments are affected by problems and to assign responsibility for making changes.

In a recent incident, the Staples.com site slowed considerably for people in one geographic area, and customers began writing in about the problem. The comments were immediately forwarded to IT, which took action. "It probably would have shown up when you run all your site statistics but was probably very small in aggregate. But when you actually started hearing from people and saw it," Staples was able to fix it right away," says Shoback.

While measuring customer satisfaction is a priority for retailers, a merchant with a physical, online and delivery presence has a lot of contact points to measure. In Staples' case, there are 29 distribution centers, each with its

own fleet of trucks. Ordinarily, Staples would gauge its effectiveness only through internal metrics: Were goods delivered, and were they on time?

BizRate data gives Staples a more granular look at distribution processes. Customer feedback is indexed against the relevant distribution center or driver. As with anecdotal feedback, distribution feedback is translated into metrics and pushed out to the appropriate departments when there are problems.

Shoback declined to quantify the overall customer response rate to the BizRate surveys, but she says it's both statistically significant and much higher than the 2% response rate Staples targets on its direct marketing campaigns. Staples reads all customer feedback and responds to most of it.

WBSTORE.COM

Gaining Online Customer Insight

Warner Bros.' online store, Burbank, Calif.-based WBStore.com, has been open for business for five years. But it wasn't until the 1998 holiday shopping

season, when it did more business than management expected, that it made a serious effort to boost the revenue it earned. To do that, the company needed better site data. "We knew how many page views we were getting but that wasn't telling us enough about our site, especially as a retailer," says Bettina Sherrick, marketing director for e-commerce.

Dave Clark joined WBStore.com as vice president of e-commerce the following April and started shopping around for third-party rating services. He eventually selected BizRate.

In November, WBStore.com launched BizRate to provide insight into customer satisfaction with its site and delivery processes. After it began using BizRate, it saw an immediate jump in feedback. From November to January, WBStore.com got 12,000 responses through the service.

Given the amount of data gathered and the need to act upon it quickly, Warner Bros. tapped one employee to

Continued on page 52



lunch with co-workers



You always know who's picking up the tab. And how to expense it. You're more than an independent professional - you're a guru. Whether you're a virtual CIO, sales consultant, or anything in between, you now have a home on the web. An all-inclusive source for projects, resources like health insurance and tax tips, and a place to connect with other gurus just like you.

 **guru.com.**
Power for the independent professional

Constructive Web Critics

Continued from page 49

spend much of her time taking the feedback and distilling comments for weekly steering meetings attended by Clark, a vice president of direct marketing and three Internet directors.

Customer feedback has driven many changes. Most involved combining different bits of information in any place it might be needed so users wouldn't have to hunt for it.

For example, when a significant portion of the thousands of responses gathered in a couple of months said customers had difficulty finding customer service phone numbers, a link to that information was added to every page. Other customers complained that the product-ordering pages contained children's clothing sizes but didn't include a definition of what "medium" really meant, so WBStore.com added that information. "I don't think you can go overboard in giving people what they want, unless it slows things down and makes a less-compelling experience," says Clark.

Clark says the demographics of the

BizRate respondents so far largely mirror those of survey respondents who shop in Warner Bros. retail stores and of focus groups the site conducts.

The 150-plus brick-and-mortar Warner Bros. stores also conduct their own focus groups and share customer satisfaction surveys and buying-pattern information. But although that information is useful and acted upon, it doesn't give WBStore.com the kind of immediate feedback it gets from using a real-time ratings service. In addition, Clark says he values the ability to benchmark the site from month to month. "We just re-launched our site, and we're really anxious in a month or so to go in and look and see firsthand feedback from customers," he says.

MVP.COM:

Rating Pages in Real Time

If you're not careful, you might miss it: a small "1-1" graphic in the upper-right-hand corner of every MVP.com Web page that occasionally spins into a "1-1" graphic. Scroll your mouse over it, and the graphic widens into boxes

with numbers from one to five and the request to "Please rate this page."

It's a ratings service called OnlineOpinion, from Chicago-based OpinionLab LLC. MVP.com, also in Chicago, subscribed and added the online opinion tag to each of its Web pages in time for the site's January launch. MVP.com is an online sporting goods, outdoor and fitness retailer founded by sports legends Michael Jordan, John Elway and Wayne Gretzky.

OpinionLab aggregates the data, provides MVP with online access to various reports and lets users set rating thresholds. If a page falls below a certain rating, someone can be e-mailed immediately.

"We weren't sure how willing people were going to be to submit ratings," says Ian Drury, chief technology officer at MVP.com. No problem: The company gets about 1,000 ratings per day on its pages. "These metrics give us unique insight into how our customers feel about each individual page. That's not something we can necessarily get from our e-commerce database," says Drury. The ease-of-use of the graphic, he surmises, has helped lead to relatively high penetration rates with customers, although he declined to quantify those results.

To keep the site scoring high with customers, MVP uses a two-stage approach. First, it keeps an eye on statistical data to diagnose problems. Then, when something needs to be fixed, it relies upon customer comments to discern the problem and find a good solution. About 25% to 30% of customer responses include additional anecdotal comments.

Every Thursday night, the marketing, merchandising, customer service, fulfillment and technology departments receive full reports. The next afternoon, representatives from each department come to a weekly meeting, armed with action items for addressing problems. Changes made the week before and their subsequent impact on metrics are also examined to see if they were successes or failures. Action items, such as marketing planning, vertical e-mail campaigns or technology enhancements, are tracked on a rolling spreadsheet by Drury's office. Microsoft Corp.'s project software is used to track the more complicated efforts.

Overall, the OpinionLab data helps MVP determine which part of the site to focus on first, says Drury. It has "really minimized our dependence upon usability tests, which, until you had tools like this, was the only way of getting such tangible feedback from

The actual raw data scores are great, but . . . it's the comments . . . where you can improve what you can do.

JACQUE SENGRAK, VICE PRESIDENT OF OPERATIONS, STAPLES.COM

customers." That kind of feedback helps MVP.com rapidly refine its site, says Drury. Without the anecdotal data, the company would have to monitor the clickstream data daily and make educated guesses about why customers were dropping out at certain points.

One of the changes recently made in response to user feedback was on the product selection page. If a user went to the golf section and then clicked on "clubs and wedges," he would be presented with a list of 15 to 20 product choices. By scrolling over each name, he would see an image of the product. But many customers didn't understand how the page worked and said so via OnlineOpinion.

In the revised version of the product selection page, MVP now displays images for each product listed. The impact was immediate: Ratings for product selection pages jumped more than a point on a five-point scale. Customer conversion — getting people to buy or buy again — also increased for those pages. "That's the kind of positive, tangible business impact that having access to the OnlineOpinion data can provide," Drury says. "It highlighted an area for improvement; we recognized it, made it, saw the impact and saw an increase in conversion and revenue."

Turning Feedback Into Fixes

To make sure its site keeps meeting customer expectations, the online Warner Bros. store, WBStore.com, relies upon information from BizRate.com. BizRate lets online customers rate the site's content and fulfillment process, plus their level of satisfaction after the goods are delivered. Warner Bros. uses that statistical and anecdotal information to make sure its pages are meeting customer demands. When they aren't, changes are made. Often, the changes are small but generally noticeable improvements in site usability. The following are three such changes:

PRODUCT SIZES

Customer comment: "I was unable to find out what size 'M' was for kids' shirts. Is it a 4-5 or 10-12?"

Problem: Order pages listed sizes as S, M, L, or XL. But the sizing chart that translated those designations into appropriate size and weight was on a different page.

Solution: Sizing charts were added to the order pages.

CHARACTER AFFILIATION

Customer comment: "I wanted to find all adult clothing with Daffy Duck on it."

Problem: Customers often had an affinity for a certain Warner Bros. character, but the site wasn't exploiting that. Solution: The site now lets customers select and add products by various categories, such as characters, types of clothing, types of toys and games.

GETTING HELP

Customer comment: "Would like to see a phone number for customer service. (Just in case there is a question.)"

Problem: Customers often needed to call customer service, or if they didn't, were just annoyed by seeing they had the option. Solution: A link to customer service information was added on every page.

—Matthew Schwartz

Favorites



Treat your
best e-customers
like favorites and they'll
do the same for you.

*They come. See.
Maybe even buy.
Then they leave.*

And that's when your selling job,
not to mention your success in
e-commerce, really begins.

The SAS® Solution lets you combine the Web data a customer left you seconds ago with the purchasing, behavior, and demographic data you've been keeping all along. And that makes it easy to:

Get to know your e-customers...delight them by proving you understand them...personalize your interactions...and predict their changing needs.

Build strategies to retain customers...cross-sell to them...and make the most effective use of *all* your marketing channels.

Improve your Web site by analyzing who clicked on what and why...and which pages customers come back to most.

For a free guide, *Taking the Guesswork Out of Your E-Business Strategy*, come to www.sas.com/favorites or give us a call at 919.677.8200.

The Business of Better Decision Making

www.sas.com/favorites

E-mail: cw@sas.com

919.677.8200

SAS
SAS Institute

In Canada phone 1 800 368 6877 or 919 677 8200. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates US registration. Other brand and product names are trademarks of their respective companies. Copyright © 2000 by SAS Institute Inc. SAS 2000

Our site does \$14 billion a year on the Web. Just one reason to consider letting us handle yours. Our Dedicated Hosting solutions, starting at \$199 a month, offer a wide range of flexibility and customization options. And they're supported by Dell™ PowerEdge™ and PowerApp™ servers, built for maximum uptime featuring Intel® Pentium® III processors. We also offer Basic Shared hosting packages starting at \$17.95 a month. All hosting packages come with **TrellixWeb™** Dell™ Edition – an easy-to-use Web design tool that helps you create and launch your site – with no html experience required. DellHost™. Because it's still not too late to be the next e-com wunderkind.

DELL WEBHOSTING SOLUTIONS:

BASIC WEBHOSTING SOLUTION

- DellHost™ Shared S1100
- 100MB Storage Capacity
- 5GB Monthly Data Transfer
- 10 POP3 E-mail Accounts
- Domain Name Registration* (Establishes Your Website Address)
- TrellixWeb™ Dell™ Edition – Easy-to-use Website Design Tool
- Site performance and Traffic Reporting
- Support for Microsoft® FrontPage® 2000 Extensions
- 99.9% Uptime Guarantee
- Telephone, E-mail, and Website Technical Support
- 30-day Money-back Guarantee*

\$17.95/mo.

PLUS \$20 ONE-TIME SETUP FEE

- Add E-commerce Shopping Cart for \$12/mo. plus Transaction Fees
- Add 5 RealAudio®/RealVideo™ Streams for \$20/mo. plus \$25 Setup Fee

E-COMMERCE SOLUTION

- DellHost™ Shared E2700
- 200MB Storage Capacity
- 10GB Monthly Data Transfer
- 20 POP3 E-mail Accounts
- Domain Name Registration* (Establishes Your Website Address)
- E-commerce Bundle Includes:
 - Mercantec Software for up to 250 Products, Payment Gateway* and Merchant Account for Online Credit Card Acceptance and Processing
- TrellixWeb™ Dell™ Edition – Easy-to-use Website Design Tool
- Site performance and Traffic Reporting
- Support for Microsoft® FrontPage® 2000 Extensions
- 99.9% Uptime Guarantee
- Telephone, E-mail, and Website Technical Support
- 30-day Money-back Guarantee*

\$99.95/mo.

PLUS \$20 ONE-TIME SETUP FEE

DEDICATED SERVER 03000

- DellHost™ Dedicated D3000
- Dell™ PowerApp Web 100 Server Appliance
- Intel® Pentium® III Processor at 600MHz
- 54MB SDRAM/GB SCSI HD
- 2 Integrated Intel® Pro 100™ Ethernet Adapters
- Red Hat™ Linux™ Operating System
- TrellixWeb™ Dell™ Edition – Easy-to-use Website Design Tool
- Support for Microsoft® FrontPage® 2000 Extensions
- 99.9% Uptime Guarantee
- Telephone, E-mail, and Website Technical Support

\$249/mo.

PLUS \$200 ONE-TIME SETUP FEE

- Weekly Network Data Backup Service, add \$75/mo.
- Add E-commerce Capability for Only \$100/mo. plus Transaction Fees
- Domain Name Registration, add \$70

DEDICATED SERVER 03300

- DellHost™ Dedicated D3300
- Dell™ PowerEdge™ 2400 Server
- Dual Intel® Pentium® III Processors at 667MHz
- 512MB RAM/27GB Storage Capacity (Three 9GB Ultra3 SCSI HDs)
- 21GB Monthly Data Transfer
- Integrated Intel® Pro 100™ Ethernet Adapter
- Red Hat™ Linux™ Operating System
- TrellixWeb™ Dell™ Edition – Easy-to-use Website Design Tool
- Support for Microsoft® FrontPage® 2000 Extensions
- 99.9% Uptime Guarantee
- Single channel RAID
- Telephone, E-mail, and Website Technical Support

\$575/mo.

PLUS \$200 ONE-TIME SETUP FEE

- Weekly Network Data Backup Service, add \$75/mo.
- Add E-commerce Capability for Only \$100/mo. plus Transaction Fees
- Domain Name Registration, add \$70

DELLHOST.COM

pick up your phone. pick up your mouse.

800.759.0391

www.dellhost.com

With job turnover at record levels, trust, training and technology still top the list of what keeps IT workers happy and on the job. Unfortunately, many managers keep missing the message. By Sharon Watson

PALMPILOTS AND wine and food pairings. This odd couple is a key reason why Alan Atkinson, manager of information technology at Franciscan Estates, a winery in Rutherford, Calif., is a satisfied IT professional.

The PalmPilots, used in the vineyard to collect harvest data, represent Atkinson's employer's willingness to explore new technology. The wine and food pairing dinners — for which the winery's chef helps create and prepare menus — are indicative of Franciscan Estates' creative rewards for its employees.

"Money only goes so far," says Atkinson. He's echoed by other IT professionals, who say it takes a combination of factors for them to ignore a headhunter's calls.

Regular training and the opportunity to work with the latest technology top the list. In fact, even professionals with serious complaints about their job situations say access to training and technology are reasons why they're staying put for now.

"I get to play with the best toys in town," says a project manager at an international IT services firm. "Where else am I going to troubleshoot a server alongside the guy who developed it?" Professionals say they especially appreciate training in technologies their companies may not be using yet, be-

cause it makes them feel that they're keeping their skills current. The project manager says he asks for and receives virtually any training he wants, whether it's applicable to current projects or not — a benefit that, for now, is keeping him with his employer, although he's unhappy with other work conditions. As for technology itself, when IT folks say they want to work with lead-

How to Keep Your IT Employees

Match industry salary standards for their positions as closely as you can.

Train, train and train some more.

Give incentives of bright new technology toys to play with.

Stand back and let them do their jobs

(but tell them when they're going off track).

Communicate, communicate, communicate.

Make sure credit is given where credit is due.

Be profitable with sales.

Pay for the burgers when the department goes to lunch.

ing-edge technology, they mean Web applications, Windows 2000, the latest Cisco routers, alpha and beta software and hardware products from leading vendors and more.

Obviously, not every company will be able to buy every new toy on the market. That's why management also plays a critical role in keeping employees satisfied, say IT workers. Their message is simple: We stay when you treat us as trusted professionals.

"This company hires good people and lets them be creative," says a systems integrator at a firm doing work for the U.S. Air Force. He says many staffers have been there for five to 10 years, in part because they're given interesting projects and allowed to come up with their own solutions to problems.

Others say it means a lot to them when high-ranking users and clients recognize their contributions. "Our area has a direct impact on the business, and if our products do well, it gets back to us," says a senior programmer/analyst at a Midwest insurance firm.

Bucks Stop Here

Compliments aren't enough, though. Even satisfied workers say they'd like to see more of their earnings tied to performance. More than half the respondents to Computerworld's recent Annual Job Satisfaction Survey said they're somewhat to very dissatisfied with the connection between their performance and their pay, as well as with

Why Staffers Stay

Retention Tips From Your Rank and File

As part of Computerworld's recent Job Satisfaction Survey (see "It's the Opportunities, Sharpe!" April 24), we asked IT professionals for the advice they would give to their managers on how to keep them onboard and satisfied with their jobs. Many respondents shared thoughts similar to the following:

● TELL ME HOW I'M DOING

Provide consistent and regular feedback that not only guides my day-to-day performance but also assists me in developing those skills and characteristics that will allow me to advance my career opportunities within our organization.

● NOTICE ME, FLATTER ME

Keep me in the loop, get me the training I requested, make sure you notice everything I do — the good and the not-so-good. Don't forget that a pat on the back once in a while goes a long way. And also don't forget that sometimes a pat on the back doesn't cut it and more substantial rewards can speak volumes.

A QUESTIONNAIRE

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

BY JEFFREY M. HARRIS

WHICH REAL DECISIONS YOUR INTEREST IN EMPLOYMENT OPPORTUNITIES AT OTHER COMPANIES?

	MALE	FEMALE
Has seriously thinking but would consider other opportunities	33%	40%
Thinking about making a job change	19%	24%
Always looking for other opportunities	19%	16%
Currently seeking a job change for advancement	12%	7%
Currently seeking a job change for higher salary	8%	8%
Has desire to change jobs	12%	6%

HOW HAVE YOU JOBS: WHAT TYPE OF ORGANIZATION ARE YOU CONSIDERING?

	MALE	FEMALE
Based in professional or service company	33%	33%
Consulting firm	19%	22%
Large user company	19%	19%
Out-call or start-up company	12%	1%
Technology vendor (hardware, software, services)	19%	12%
Other (not specified)	3%	6%

WHAT FACTORS WOULD MOST COMPEL YOU TO PURSUE ANOTHER IT POSITION AT A DIFFERENT COMPANY?

	MALE	FEMALE
Higher salary	17%	15%
Greater opportunity for training and advancement of skills	14%	15%
Access to new and challenging technologies	13%	13%
Challenging assignments	10%	14%
Technology direction of IT department of new company	10%	16%
Expanding business	9%	7%
Business control over work schedule and hours	7%	8%
Job security	7%	5%
Business direction of new company	7%	7%
Relationship with current manager	4%	4%
Other (not specified)	3%	1%

*Multiple responses allowed.

*Technology Survey of 546 IT professionals, as part of Computerworld's Annual Job Satisfaction Survey.

the frequency and amounts of bonuses.

"It'd be nice if more of our project rollouts had a direct link to our paychecks," says Atkinson. He notes that annual performance reviews often mean there's a long gap between a project's completion date and an employee's reward for it.

In any case, many IT professionals say they can always earn more money somewhere else. But they stay where they are in part because their companies have found other ways to take care of them, they say.

Good benefits packages, especially health care, are important. Perks such as the opportunity to telecommute, flexible, casual dress policies, free lunches, ergonomically correct office furniture, staff outings and other soft benefits also add to job satisfaction, they say.

IT employees at Franciscan Estates

get to work in Napa Valley, receive two bottles of wine per month and can participate in fishing derbies in well-stocked reservoirs in the valley, among other activities, Atkinson says. Also, management encourages them to network with their peers at other wineries, and it's routine at the end of IT projects for staff to be given some downtime as compensation.

"These are refreshing policies," says Atkinson, who notes that they also help him hold on to employees, even when he can't match top Northern California salaries.

Accommodating the vagaries of modern life also wins employers big points. The systems integrator says his company made up the difference in an Army reservist's salary when she was mobilized for duty in Kosovo. And the senior project manager was able to take

several days off without a problem when his child was injured recently.

Less-tangible factors also keep professionals at their current jobs. "It's worth more than I'm paid, but I have quality-of-life issues to consider," says Brian Bishop, a senior business systems analyst at First Nationwide Mortgage Corp. in Frederick, Md. Having the opportunity to live in a small town with no rush hour is a big factor in his job satisfaction, he says.

IT professionals also say they stay when they know the work they're doing is important, either to internal users or to society at large. "People stay here because they know their opinions are valued and that their contribution to the company matters," says a production application systems manager at an insurance firm in Northern California.

"It helps you stay interested, know-

ing you're doing more than programming another software module," says a telecommunications manager in San Francisco whose firm has helped bring programming jobs to small rural areas in the U.S.

Good working relationships within an IT department also create more satisfaction, say IT employees. "If I didn't like the group of people I work with, I'd move on," says Diane Foote, a senior Unix administrator at Coconet Systems Inc. in Newport Beach, Calif.

In short, there's no easy mapped formula for creating IT job satisfaction and no guarantee that workers will stay. Yet as the Job Satisfaction Survey shows, if companies don't at least try to keep IT employees happy, many of them will almost certainly go. ■

Watson is a freelance writer in Chicago.

■ APPRECIATE MY EFFORTS

More rewards (not necessarily financial). A simple thanks from the heart—not the [corporate] thank you that seems to come in a flowery fashion. Also, it would help if my manager had more time to actually see what [my] team is doing. It definitely would help if he had a better understanding of my job, and it would also help if he would defend us and not come attacking us [when dealing with customers].

■ STICK UP FOR US

Open lines of communication, and act as an advocate for your staff. We never have staff meetings and have to rely on the jungle drums to keep us in the loop. Also, run interference for your staff. Too many projects get bogged down at the "little people" level because the manager isn't paving the way.

■ CHAMPION MY IDEAS

Become an advocate for the causes I suggest. I am often left feeling in the wind because I don't know how seriously the ideas suggested are being considered. I have learned that the ideas [often] aren't considered at all.

■ HELP ME GROW

Keep helping me grow. As I continue with my education and training, I want to be able to utilize those new skills. I get bored very easily. If I'm doing the same thing day in and day out, that's when I'll be ready to leave. So far, that hasn't happened, so I guess my advice is to keep up the good work.



What would your customer service manager do with your Web site if he could?

"I'd let our best customers access technical specs."

"I'd give my reps the ability to post tips and shortcuts."

"I'd set up a public site with FAQs—in four different languages."

"I'd stop camping outside the IT department."

CONTENT MANAGEMENT should be easy. Up and running in no time. Without IT overload. That's what Eprise does. No HTML. No specialized scripting. Just a content management application that lets business users create, update, and target Web-based content — easily. After all, what good is a Web site if it can't deliver information immediately. If not sooner. What would you do with your Web site if you could?

Let us know. **WWW.EPRISE.COM**





It
combines
more than
2,000 journalists,
400 analysts, dozens of
newsletters, plus the latest IT
news and product information. Only
the ITworld.com Network gives you a
360-degree look at the world of enterprise IT.
By featuring content from Computerworld and
even other trusted sources, each with distinctly differ-
ent points of view. So you get what every IT professional
needs: a well-rounded perspective. www.itworld.com

the IT problem-solving
network™



world.com

NETWORK

an IBM
company

The You Inc. Debate

Consulting experts debate the pros and cons of incorporating your independent practice.

By Leslie Goff

AT SOME POINT ALONG THE WAY, every independent consultant has to decide whether to remain a sole proprietor (known as a 1099 for the tax form he uses) or to incorporate. The question tends to elicit strong opinions — or it inspires fear and confusion and is thus avoided altogether.

As a sole proprietor, you face liability issues. Unless you have a solid liability insurance plan, your personal assets may be vulnerable if a client sues you.

Incorporating can provide a veil of protection by establishing the business and the owner as two separate legal entities. It also makes it easier to position yourself with clients as an independent consultant rather than a W2 (staff) employee.

Computerworld asked three consultants and a tax expert if independent consultants should incorporate. Here's what they said, yes or nay:

THE ACCOUNTANT: **Nay**
Jude Kallos, enrolled agent
 New York

Kallos is an accountant who specializes in tax issues for self-employed individuals. Approximately 50 of his clients are independent information technology consultants and contractors. His Web site (www.judekallos.com) features tax tips and advice for 1099s and W2s.

"I generally discourage my clients

from incorporating unless there are liability issues, because incorporating may not necessarily reduce your taxes, but it exponentially increases your paperwork and [tax] filing requirements.

"If you set up a corporation, the income is now earned by the corporation, and you can't just take money willy-nilly from your business. Instead, you have to pay yourself a salary and deduct all the required taxes. And the burden of running a payroll can overwhelm even a savvy IT professional.

"You must withhold tax for federal, state and local authorities; your business must be registered with state unemployment insurance; you must cover employees with mandatory disability and workmen's compensation insurance, which varies from state to state."

THE LLC PRINCIPAL:
Nay
Louis Storms, president
Plan Three Solutions LLC
 Houston

Storms originally formed Plan Three in March 1999 with friend and colleague Scott Peterson (see "The Sole Proprietor"). They expected to

work together as independent consultants and eventually bring in other consultants. The business, which specializes in Web-site design and development, grew much faster than expected: Peterson sold his share to Storms, who now has 13 employees.

"Don't incorporate and don't form an LLC [limited liability corporation] unless you're going to have employees. Why go through the hassle? If you're a sole proprietor worried about liability, then weigh the administrative costs of a corporation or an LLC vs. the cost of really good, powerful liability insurance.

"Everything changes when you hire your first employee. You have benefits issues; you have to withhold payroll taxes. You can spend a tremendous amount of time just on payroll issues. If you can't stomach about 15 hours a week in administrative overhead, then remain a sole proprietor."

THE SOLE PROPRIETOR: **Nay**
Scott J. Peterson
 An independent sole proprietor
 specializing in Visual Basic development
 Houston
 (www.vbdevelopment.net)

"Personally, I have wanted to avoid any sort of large-organization mentality or headaches. I've started two different companies, and each time I wasn't satisfied. Even as the sole shareholder, you still have all the mental burdens of having a set of dynamics outside your [actual] work. It's easier for me to be an independent, pay someone to do my taxes, and just be done with it.

"In IT, there's such a high demand for folks like me that we literally spend all of our time being billed, and we can't afford the time you have to spend doing anything that's not related to earning revenue.

"The term I would use for the [paperwork] requirements for someone who incorporates is abusive. The majority of things involved are unnecessary for someone who's running a successful business — the tax forms, the payroll paperwork, all the rules and regulations and the money you have to spend making sure you're in compliance. You can subject yourself to that abuse, but I don't think there's any value added."

THE INCORPORATED SOLE SHAREHOLDER: **Yes**
Paul Reiter, president
PC3 Inc.
 Fairbrook, Calif.

Reiter and his wife, Brenda Martin, are the sole shareholders of PC3, a C corporation that Reiter formed in 1993, after five years as an independent sole proprietor. Reiter is a senior systems consultant specializing in performance tuning, and Martin is an independent IT project manager.

"I incorporated originally so I could be paid directly, corporation to corporation — by IBM at the time. I was working for the First American Bank in Nashville, Tenn. [as a subcontractor] on an IBM outsourcing deal, and the bloodsucking agency that I worked for let the contract lapse. So, I told IBM I would work for them directly, and they said OK, but only if I were incorporated.

"So I did it. IBM cut me the same deal that it had had with the agency, so my rates went up. The corporation-to-corporation arrangement is less of an advantage now [since most companies use a preferred-provider list to hire contractors]. I still go through agencies, but I invoice them. If an agency won't pay me on a corporation-to-corporation basis, I don't deal with them."

"But there are other benefits. My corporate taxes are 21%, whereas my personal profits as a 1099 would be 37%. So, I let my corporation retain the profits, and it pays my wife and I an annual salary of \$60,000 each, so we stay in the 25% tax bracket. And the wages paid by the corporation are considered a deductible expense. My opinion is that if you're a 1099, you're not serious about your business. If you've been around the business a long time, you should be incorporated because you carry more weight. And, you can command a higher rate as well."

Goff is a freelance writer in New York.



Scott J. Peterson

Paul Reiter

WHEN VENDORS BECOME PARTNERS

IT vendors are aggressively seeking corporations that can test new products and offer feedback in return. But while partnership has its privileges, it can also have its drawbacks. By Liz Horwitt

TALK ABOUT KISMET. THREE YEARS AGO, Widener University was looking for ways to provide distance learning beyond its campus in Chester, Pa. Tegrity Inc. wanted to target the Web-based education market with whiteboarding technology, which enables remote PC users to view what's written on a whiteboard. The two organizations' technical people met and began a yearlong collaboration in which Widener helped San Jose-based Tegrity turn its plain whiteboarding application into a Web-based learning tool.

Widener identified key features that would enable Tegrity's WebLearner to serve the education market and the university's needs. "We said, 'You really need client interaction, the ability for students to communicate back to the presenter, to make this work in our environment,'" says Gary Habermann, the university's director of technical resources. WebLearner is now a key component of Widener's distance learning environment.

Ten years ago, vendors basically told their customers: "Here's a product, hope you can use it," according to Frank Dorech, president of Communications Network Architects Inc. in Washington. Today, he says, vendors are aggressively partnering with corporate customers, soliciting their advice on questions ranging from what features to put in, to what works and what doesn't.

Driving this phenomenon is a fast-paced market in which vendors can no longer afford to figure out what customers want by trial and error, says Steve Jurnonville, a director of marketing at 3Com Corp. in Santa Clara, Calif., which had a partnering relationship with Widener prior to the networking vendor's recently announced restructuring. "You don't have a second chance to get it right," he says.

Vendors also see partnerships as a good way to keep valued customers, says Al Hershey, a partner at Ernst & Young International. "I'm much more likely to stick with someone who's doing his darndest to listen to my needs."

Computer Associates International Inc. in Islandia, N.Y., for instance, wants Ernst & Young's help in developing mobile laptop management software — and not only because 80% to 90% of the professional services firm's employees are mobile laptop users. Through the partnership, "They hope to encourage us to use them more in the U.S., as we do in Europe," says Hershey.

Not that customers get to dictate product strategy. "You can't change a vendor's overall product road map, but you can make sure the products they have deliver the feature sets you need," says Habermann.

And naturally, influence has its price. "If you want to be able to say to a vendor, 'I want you to provide these features,' you have to give back," says Habermann. What corporate partners mostly end up giving to the relationship is time. During Widener's close relationship with 3Com, Habermann typically spent 40 or 50 days per year working with 3Com people.

Reaping the Rewards

The rewards, however, are well worth it, vendor and corporate IT spokesmen say.

Today's vendor/customer partnerships go far beyond typical beta-test programs. New York-based Ernst & Young, for example, was one of only 30 firms selected to participate in Microsoft Corp.'s Windows 2000 Joint Development Partner program. "People were beating down the doors to get in," says Hershey.

And no wonder. Ernst & Young technical engineers got to work closely with Microsoft's product engineers as they tested Win 2k for bugs and tried

out various features. Best of all, when they talked, Microsoft listened. "They told us they wouldn't release Win 2000 till we agreed it was ready," Hershey says. "They wanted real feedback."

To get that critical feedback from valued customers, vendors are willing to provide all sorts of privileges and perks.

"It's a golden egg, giving vendors feedback," says Kevin Hamilton, chief technology officer and CIO at MediaNews Group Inc., a Denver-based national newspaper chain. "In return, you get special pricing, sample code of advanced stuff, undocumented features, free licenses."

There's also the opportunity to get a strategic, unshipped product well ahead of the competition. "We'd get access to technology six to 12 months ahead of everybody else, so we [could] plan ahead," says Habermann.

Furthermore, vendors provide their most valued product-testing partners with a level of support that regular customers can only dream about.

For example, Widener extensively tested 3Com and third-party products in close collaboration with the vendor's product engineers. "If we [had] an issue with a product, we didn't talk to support; we talked to the people who wrote the code, who actually know how it runs," Habermann says.

Influencing Products

But what most often draws corporate IT departments to partner with vendors is the chance to influence product direction.

Take Ernst & Young. Several years ago, the Big Five firm recognized the vast business potential of knowledge management and found nothing in the market that met its needs. "[Lotus] Notes was just a set of tools to manage simple discussion groups and e-mail," Hershey recalls. And so, he says, the consulting company, in alliance with Lotus Development Corp., "took a sledgehammer to Notes and turned it into something that could form the basis for certain parts of our knowledge-management infrastructure." Ernst & Young worked with Lotus to provide administration tools that could scale up to thousands of users. Such tools were necessary for "Ernst," the global knowledge-management service Ernst & Young built with Notes. Ernst automatically routes customer requests to the right experts.

During Widener's partnership with 3Com, "we were able to lobby for whatever features we wanted to see on," Habermann says. The university had been pushing for directory-based management of additions, moves and changes of user addresses, a crucial capability since it has about 100,000 user ports on its network.

But overly close partnerships can become liabilities, as Habermann can attest. The school had based its network strategy almost entirely on 3Com equipment. 3Com's recent decision to jettison its network switch product line has set back Widener's networking strategy by a good six to 12 months, Habermann says. "I'm on a level playing field with everyone else now, and I don't like it."

Dependency's Drawbacks

Vendors, too, have learned the perils of dependency. A few years ago, many went from taking no customer input to letting their favorite customers dictate what went into products. Drubeck says. Most of the resulting products served neither the general market nor the customers that originally demanded them, he adds.

"The competition would come up with features

"You can't change a vendor's overall product road map, but you can make sure the products they have deliver the feature sets you need."

GARY HABERMANN,
DIRECTOR OF TECHNICAL RESOURCES,
WIDENER UNIVERSITY



customers never thought to ask for," he says. "Guess whose products they bought?"

Today, most big players tend to use their own market judgment on major product decisions. And they often elicit feedback from a pool of customers.

3Com's Technical Advisory Council (TAC), for example, is made up of chief engineers and network architects from key customers, who meet with the vendor's product engineers several times per year. "We have some good battles and whiteboard sessions," says 3Com's Juronville.

The meetings are of inestimable value to 3Com,

Juronville says. "At a recent TAC meeting, we said to customers, 'Here are 85 [proposed] features; we only have enough engineers to develop 43. Which ones do you want?' Then the engineer can go back to [upper management] and say, 'There really is a market for this feature; we're not just guessing.'"

Not that vendors have completely given up one-on-one partnerships with customers. "What I've seen over the past couple of years [are] vendors listening to large clients who are deploying groundbreaking technologies," says Widener's Habermann. "We're usually the first ones to find the deficiencies in their products."

For example, Widener, an early explorer of the Web as a learning medium, was among the first organizations to start sending multicast traffic. It gave 3Com, its main networking provider at the time, a valuable heads-up that it needed to support that capability in its stackable switches, Habermann notes.

Helping the Little Guy

Smaller companies may be more willing than big ones to take the advice of a single corporate partner, particularly one that votes with its pocketbook.

Take FDX Corp., the parent of Federal Express Corp. in Memphis, which helped fund the development of Velociti, a message-oriented middleware product from Virtis Technology Inc. in Sunnyvale, Calif. "We wanted to make sure we could get the publish/subscribe messaging capabilities we needed for moving data between applications," says Rob Carter, chief technology officer at FDX.

Corporate customers like Ernst & Young have even provided vendor partners with homework code as the most efficient way to get a feature they need into a product. And sometimes customers can plant the seeds of ideas that move vendors in a whole new technological direction.

"Vendors often focus on a very narrow range of things," says John Voeller, chief technology officer at Black & Veatch in Kansas City, Mo. As a global construction and engineering company with ties to almost every industry, Black & Veatch can provide vendors with a broader perspective.

For example, Voeller says he's turning to several communications firms about how to "leapfrog" the next generation of networking technology.

"This will enable them to provide a bunch of things we're interested in seeing sooner," he says.

"We're not after just the next big thing, but what's beyond that," Voeller explains. "That means we have to be a source of innovation."

Horwitz is a freelance writer in Waban, Mass.

How Your Company Can Qualify for Vendor Partnerships

Size: You want to be a vendor partner? Vendors don't enter into close partnerships with just any company. Being a loyal and large-scale user of their products is a start but not a guarantee you'll be chosen. Here's a rundown of other attributes you might need:

Experience: Media visibility helps a lot. Vendors see when a company is doing interesting things with technology. If they see an old-school CEO or vice president of technology in the trade press, they're more likely to approach that company. And vendors want big-name companies that will be mutually identifiable to the world at large, says Al Hershey, a partner at Ernst & Young.

Critical masses: Vendors look for companies that have a lot of users they can credit on glossy plaques.

Good testing facilities: "You have to have a lab," says Widener University's Gary Habermann. "We have an almost \$1.8 million lab needed after our production environment, where we certify how new software and equipment will behave."

The right attitude: You must be willing to devote time to the vendor and to test technology early in the product cycle. Essentially, you have to demonstrate "a willingness to accept risk," says Chuck A. Venable's John Voeller.

Good feedback: Vendors look for people like Habermann, who is articulate and alert. "Habermann doesn't sugarcoat anything," says John Voeller, an account manager at 3Com.

— Liz Horwitz

Value-Chain Management

DEFINITION

Value-chain management is managing integrated information about product flow from suppliers to end users to reduce defects and inventories, speed time to market and improve customer satisfaction. Even the most complex value chains can be managed via intranets, extranets and proprietary networks.

BY MARIA THOMAS

VALUE-CHAIN management is the Holy Grail for many of today's most progressive and innovative companies.

It moves businesses away from discrete streams of data about the product being made to one unified pool of information—one that even extends outside the company to suppliers and customers.

The goal: Full and seamless interaction among all members of the chain, resulting in lower inventories, higher customer satisfaction and shorter time to market.

But the obstacles are significant. For starters, many find that the software available is either fragmented, tackling only small portions of the entire value chain, or only recently released and relatively untested. And companies often

face institutional barriers to communication between far-flung and operationally disparate divisions.

"Very, very few customers are even close to implementing [ideal value chains]," says Joshua Greenbaum, principal partner at Enterprise Applications Consulting in Berkeley, Calif. "In an ideal world, you would do value-chain management by starting fresh, building an organization from the ground up. And that's the dream of a lot of dots."

But the reality, he says, is that value-chain management has to coexist with legacy management practices.

"You need to break down a lot of the traditional corporate barriers in a company that generally treat these different areas as separate entities that don't necessarily communicate with each other," he says. "Sales and marketing rarely

talk to each other, neither ever talks to logistics or finance. Most companies don't have the business culture that understands an integrated view."

But even when starting from scratch, it can take a great deal of work to develop a value-chain management system.

An Expensive Undertaking

Venture capitalist Edward Greissle, managing partner of 1stVenture.com in New York, looks for such a system when evaluating a business plan—and checks to make sure start-ups follow through.

One recent example is Ship-a-Toy.com, which sells gift baskets of toys.

"To be honest, value-chain management was not one of the things they thought about," Greissle says. "But once we went through a testing period, we had to restructure. This was a difficult phase in the project."

According to Greissle, Ship-a-Toy.com deals with products from more than 30 distributors, in what he called an "outsourcing nightmare." Getting the right product delivered to the customer and tailored on time requires deep coordination among all pieces of the production process, he says.

"Without value-chain management," Greissle says, "this business could not exist." In fact, the issue is critical to a wide range of businesses in the new economy, he says.

"If a company does not have the ability to manage its data, its future is in question,"

Greissle says. "Only companies that are utilizing the new information age to its fullest will make it. They're the only ones streamlined enough to succeed."

For most businesses, value-chain management means reworking not just computer systems but also business processes and the structure of the organization itself.

And not only is there a great deal of time and effort involved, but value-chain management can also rack up high technology bills.

"The sky's the limit," Greenbaum says. "How much do you want to innovate? How much do you want to implement? How much do you want to be a pioneer? It can be hugely expensive because we not [only] need to have the IT resources, you need the facilities to do it, automated warehouses, tightly controlled logistics and supply chain, partners who can play the technology game with you and the command and control to force those partners to do it."

"That's where Dell and Cisco have an advantage," he added, "but there's not a lot of Dells and Ciscos in the world."

Improved Coordination

In the long run, integrated value chains can save money, thanks to lower transaction costs at each link of the chain. They can also increase a company's responsiveness, decrease inventories and help add to customer satisfaction.

"Part of the supply-chain management [system] is to help us understand customer

demand much better," says Jim Gouin, chief financial officer at Ford Motor Co.'s Ford ConsumerConnect. "And the supply base can have access to our system, and we can see what kind of production capabilities they have and the inventories on the floor."

Ford is partnering with Oracle Corp. to create an electronic exchange for its business partners, which the companies hope will lower costs by increasing competition among their suppliers.

This exchange, which includes the Big Three automakers, will also cut transaction costs at each stage of the manufacturing and sales process and will allow suppliers to keep a closer eye on expected demand, says Gouin.

Another traditional manufacturer making strides on the customer side of the value-chain area is Caterpillar Inc. in Peoria, Ill., according to Michael Lloyd, vice president of Chicago-based An Corp.'s consulting division.

"They manage the service value chain all the way from initial sales to the total duration of the product," he says. "Caterpillar positions itself really well, not just as provider of engines or equipment but as a full-spectrum provider of services, training for the maintenance people—the total package."

In addition, the customer side is linked back to the production side, Lloyd says. "A lot of the ideas for product development come directly from the users." ▀

Supply-Chain Industry Snapshots

Ranked from most integrated to least integrated, according to Joshua Greenbaum at Enterprise Applications Consulting:

HIGH-TECH MANUFACTURING

Companies in the high-tech manufacturing industry, such as Intel, have always had a strong technology bent, and they've worked with many tech companies downstream.

Particularly on the exploration side, these companies have always had a strong technology bent, and they've worked with many tech companies downstream.

FINANCIAL SERVICES

Banks and other financial institutions are handicapped because, on the consumer side, there's a very little integration among different product categories. Very few banks are able to have a good view of their customers.

UTILITIES

Utilities are handicapped because they have a very limited view of their customers. They're not able to have a good view of their customers.

This industry is the farthest from value-chain management. It has tried and extensive supply chains and distribution chains.

CONSTRUCTION

There isn't much high technology used in this business—either at the construction site itself or among the suppliers.

Value-Chain Management

DEFINITION

Value-chain management is managing integrated information about product flow from suppliers to end users to reduce defects and inventories, speed time to market and improve customer satisfaction. Even the most complex value chains can be managed via intranets, extranets and proprietary networks.

BY MARIA THOMBLEY

VALUE-CHAIN management is the Holy Grail for many of today's most progressive and innovative companies.

It moves businesses away from discrete streams of data about the product being made to one unified pool of information — one that even extends outside the company to suppliers and customers.

The goal: Full and seamless interaction among all members of the chain, resulting in lower inventories, higher customer satisfaction and shorter time to market.

But the obstacles are significant. For starters, many find that the software available is either fragmented, tackling only small portions of the entire value chain, or only recently released and relatively untested. And companies often

face institutional barriers to communication between far-flung and operationally disparate divisions.

"Very, very few customers are even close to implementing [ideal value chains]," says Joshua Greenbaum, principal partner at Enterprise Applications Consulting in Berkeley, Calif. "In an ideal world, you would do value-chain management by starting fresh, building an organization from the ground up. And that's the dream of a lot of dot-coms."

But the reality, he says, is that value-chain management has to coexist with legacy management practices.

"You need to break down a lot of the traditional corporate barriers in a company that generally treat these different areas as separate entities that don't necessarily communicate with each other," he says. "Sales and marketing rarely

talk to each other; neither ever talks to logistics or finance. Most companies don't have the business culture that understands an integrated view."

But even when starting from scratch, it can take a great deal of work to develop a value-chain management system.

An Expensive Undertaking

Venture capitalist Edward Greissle, managing partner of 1stVenture.com in New York, looks for such a system when evaluating a business plan — and checks to make sure start-ups follow through.

One recent example is Ship-A-Top.com, which sells gift baskets of toys.

"To be honest, value-chain management was not one of the things they thought about," Greissle says. "But once we went through a testing period, we had to re-strategize. This was a difficult phase in the project."

According to Greissle, Ship-A-Top.com deals with products from more than 30 distributors, in what he called an "outsourcing nightmare."

Getting the right product tailored to the customer and delivered on time requires deep coordination among all stages of the production process, he says.

"Without value-chain management," Greissle says, "this business could not exist."

In fact, the issue is critical to a wide range of businesses in the new economy, he says.

"If a company does not have the ability to manage its data, its future is in question,"

Greissle says. "Only companies that are utilizing the new information age to its fullest will make it. They're the only ones streamlined enough to succeed."

For most businesses, value-chain management means reworking not just computer systems but also business processes and the structure of the organization itself.

And not only is there a great deal of time and effort involved, but value-chain management can also rack up high technology bills.

"The sky's the limit," Greenbaum says. "How much do you want to innovate? How much do you want to implement? How much do you want to be a pioneer? It can be hugely expensive because you not [only] need to have the IT resources, you need the facilities to do it, automated warehouses, tightly controlled logistics and supply chain, partners who can play the technology game with you and the command and control to force those partners to do it."

"That's where Dell and Cisco have an advantage," he added, "but there's not a lot of Dells and Ciscos in the world."

Improved Coordination

In the long run, integrated value chains can save money, thanks to lower transaction costs at each link of the chain. They can also increase a company's responsiveness, decrease inventories and help add to customer satisfaction.

"Part of the supply-chain management [system] is to help us understand customer

demand much better," says Jim Gouin, chief financial officer at Ford Motor Co.'s Ford ConsumerConnect. "And the supply base can have access to our system, and we can see what kind of production capabilities they have and the inventories on the floor."

Ford is partnering with Oracle Corp. to create an electronic exchange for its business partners, which the company hopes will lower costs by increasing competition among their suppliers.

This exchange, which includes the Big Three automakers, will also cut transaction costs at each stage of the manufacturing and sales process and will allow suppliers to keep a closer eye on expected demand, says Gouin.

Another traditional manufacturer making strides on the customer side of the value-chain area is Caterpillar Inc. in Peoria, Ill., according to Michael Lloyd, vice president of Chicago-based Aon Corp.'s consulting division.

"They manage the service value chain all the way from initial sales to the total duration of the product," he says. "Caterpillar positions itself really well, not just as provider of engines or equipment but as a full-spectrum provider of services, training for the maintenance people — the total package."

In addition, the customer side is linked back to the production side, Lloyd says: "A lot of the ideas for product development come directly from the users." ■

Supply-Chain Industry Snapshots

Ranked from most integrated to least integrated, according to Joshua Greenbaum at Enterprise Applications Consulting:

HIGH TECHNOLOGY/IT/TELECOM	Oil and Gas	FINANCIAL SERVICES	UTILITIES	RETAIL	CONSTRUCTION
Particularly on the exploration side, these companies have always had a strong technology bent, and they connect with many tech companies downstream.				This industry is the furthest from value-chain management. It has broad and extensive supply chains and distribution chains.	

■ Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com.

"Dear Career Adviser:

I'm a (fairly) technical person with a computer science degree and a Web application development background. I want to see what's out there without being called by every recruiter, never mind letting my own company become aware I'm looking. — Hide Out Heather

Dear Hide Out:

Once you post your résumé, forget about controlling the number of recruiters who call you, particularly in a tight job market, when you have a valued skill set. But here are some suggestions.

First, write a discreet online résumé. Omit your name, the name of your alma mater and your current employer's name. Allude cryptically to the type of company you work for by industry segment and include your job title. Then create a temporary e-mail address at Yahoo or Hotmail to use as your sole means of contact, suggests Barbara Ling, author of *Internet Recruiting Edge*.

Use sites that let you post your résumé confidentially and that can block it from being viewed by recruiters from companies you specify. Don't post your résumé on the Web space provided by your company; link it to your company's home page or put

it up on sites where your own company's recruiters are likely to find it.

But finally, be prepared for a sharp internal recruiter from your own company to notice. It's inevitable.

Dear Career Adviser:

I have been programming on the Stratus Computer platform since 1985, and prior to that I was an IBM mainframe programmer. Since 1990, I've been consulting as an independent contractor and also via consulting firms. I am concerned that opportunities and installations for Stratus are drying up and giving way to client-based and Web platforms. I'm experienced in Cobol, PL/I and C, but how can I gain experience with HTML, C++ and some of the newer technologies? — STRATUS SENIOR

Dear Senior:

The hardware platform isn't as important as your

software skills, which are more transferable, according to Robert Todd, chief learning architect at DigitalThink Inc., a San Francisco-based company that provides online technical training in Java, Oracle, Microsoft and Lotus applications, and other technologies.

So log on and learn to upgrade your technical skills in short order through course work on the Web and interaction with an expert tutor who is available for consultation as you move through the course via interactive exercises.

If you have no skills in databases, you'll need to take a series of SQL courses to understand the query language. But you could blast through those in as little as a month and then get to courses that involve real substance.

For certification, you'll need to go to an accredited testing center where the test can be monitored. If you're trying to phase yourself out of older technologies, this is a great so-

lution, available anywhere you are, around the clock, while you get your hands on projects and exercises you can show on interviews. In a tight job market, this is a good way to get yourself going and then remarket yourself with some newer skills.

Dear Career Adviser:

I have a bachelor's degree in computer science, a master's in systems management and five years' experience as a Unix systems administrator and webmaster (Solaris and True64 platforms) at a government agency. I also have some Oracle database administration experience. I like working on a variety of new projects and get bored with doing the same thing over and over again. Where do I go from here?

— EASILY BORED

Dear Easy:

Combining your desire for variety with your skill set as an experienced systems administrator who is cross-trained in databases makes you a valuable candidate, according to Evan Corstorphine, director of operations and infrastructure at Benefic-

Point Inc., an online benefits administration firm in San Francisco. Corstorphine cites three possible paths: deepening your skills technically, becoming a project manager or working your way into technical personnel management.

If you want to become a master "techie," take more Sun Microsystems Inc. systems administration courses, which will strengthen your networking fundamentals knowledge and deepen your understanding of routing,

firewalls and switches, disk arrays and kernel optimization. Corstorphine advises,

Or you could explore project management, leveraging your technical knowledge across larger problems while working with a team to achieve results.

Technical personnel management jobs have all

the elements of project management, plus a direct responsibility for supervising, mentoring and developing staff. However, if you're more of a "lone ranger" who's happier solving intricate problems as a solo act, sharpen your individual technical skills and don't commit to managing people or projects day-to-day. ■



PEARL SWITTEL is an expert in high-tech careers and recruitment. Send questions to her at career_advice@computerworld.com.

BRIEFS

Wireless Banking

Electronic-banking infrastructure provider 724 Solutions Inc. in Toron is has announced an effort with financial software vendor Cerillion Corp., in Bloomington, Ore., to add wired and wireless Internet banking capabilities to banks that buy its service. The product will permit banking over Wireless Application Protocol-enabled phones when the service becomes available in the fourth quarter of this year, the companies said.

App Test-Drive

Rumors AB, a Stockholm-based start-up, has launched a Web site

that allows users to test-drive applications over the Internet. The site offers English-language applications from five vendors, including Corel Corp., TeamSoft Inc. and Wave Source Inc., an Apple Inc. subsidiary. It describes the test experience as similar in that of naming the software locally. The service is free to registered users at www.rumors.com.

Sites See Ailing Profits

Health-related Web sites run by Drug Emporium Inc. in Powell, Ohio, and Drisip.com Inc. in Austin, Texas, suffered big losses for their most recent quarters, according to company announcements last week. Both have hired investment bankers to find financing for their expanding Web operations and are discussing a

possible merger. Drug Emporium posted a \$19.8 million loss in its fourth fiscal quarter ended Feb. 28. Drisip.com announced a \$24.8 million loss for the quarter ended March 31, on revenue of \$4.7 million.

AOL Settles With SEC

America Online Inc. has agreed to pay \$3.5 million in penalties to the U.S. Securities and Exchange Commission (SEC) to settle a civil suit that charged the company with improper accounting of advertising and marketing. The online giant didn't admit or deny the charges that were brought against it, the SEC said. The government agency claimed that AOL reported profits for six of eight quarters in fiscal 1995 and 1996 rather than the losses it really had. The so-called profits

came from booking marketing costs related to acquiring new subscribers as assets instead of expenses, the SEC said.

Web Ad Spending Up

The Association of National Advertisers in New York has released a study of its members that shows companies are spending more on developing their sites and on online advertising and promotion but are seriously concerned about how effective online advertising is. Respondents said they tripled their online ad spending to \$1.9 million this year but still spend less than 2% of their total ad budgets online. Forty-nine percent said the lack of proof of efficacy, which they measure by click rates and the number of ads delivered, is a barrier to further advertising.



SOURCE: SURVEY OF 20 MEMBERS OF ASSOCIATION OF NATIONAL ADVERTISERS. FIGURES IN MILLIONS OF DOLLARS. ROUNDED UP OR DOWN TO NEAREST \$100,000.

seeking IT

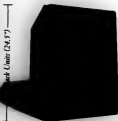
LOVE CONNECTION

Unique, sleek, small-framed beauty
with open-minded, dynamic personality
seeks forward thinking IT professional
for long-term committed relationship.
Let's grow together.

☎ 1-800-336-1233

SUPPLY BACK & HAND

1 rack units (24.3")



Meet Your Future Backup – ADIC's New Scalar 100

A new standard in scalable tape libraries from ADIC, the Scalar® 100 has all the features you want in a backup solution now and in the future.

Unmatched Scalability. ADIC's Scalar 100 starts out as a one- or two-drive, 30-cartridge DLT tape library, comparably priced to smaller Compaq and HP units. Then it scales easily and cost effectively up to 6 drives and 60 cartridges to meet new storage demands and protect your investment.

Easy, Plug-in Connectivity. Simple plug-in modules let the Scalar 100 adapt to your changing storage needs—SCSI, SAN, or NAS.

More Storage in Less Space. With 50% more storage capacity than comparably sized products, the Scalar 100 packs 4.8TB* of storage capacity into only 14 rack units, saving valuable space for future growth.

Drive-Independent Design. Backup with DLT today, and with AIT, LTO Ultrium, and SDLT models tomorrow.

Unfailing Protection. Enjoy the highest level of service and support, including a full year of free on-site service from ADIC, the leader in open systems data storage solutions.

© 2000 ADIC Corporation. All rights reserved. ADIC, the ADIC logo, and Scalar are trademarks of ADIC Corporation. *Based on 16000000 bytes per cartridge.

adic

TECHNOLOGY

NEW THREADS

A British shirtmaker looks to 3-D imagery to give its Web-site visitors a feel for its wares. Creating the look of a flowing object such as a shirt — and then sending that image over even poky dial-up connections — wasn't easy. **» 69**

LEARNING AT A DISTANCE

IBM has launched software and a business unit called IBM Mindspan Solutions, aimed at helping corporate customers plan, develop and deploy distance-learning capabilities for their employees. **» 70**

SHOW SOME ID

Melissa, ExploreZip-worm and now the "Love Bug" show what happens when we fail to protect our online identities. Digital IDs can help us do that. Guest columnist Jon Udell makes the case that digital signatures aren't just a geeky affectation. **» 77**

SECURITY JOURNAL

Pat plugs a back door with a four-port Ethernet card and wastes a day off debugging his attempted fix. **» 78**

EXTRA AMENITIES

The next time you check into a hotel during a business trip, don't be surprised if the desk clerk hands you a laptop along with your room key. Hotels that cater to business travelers are installing new network in-

frastructures and developing new guest programs — such as loaner laptops — to make their properties more business-user-friendly. **» 80**

FUTURE WATCH

Robotics failed to live up to its promises for much of the 20th century, but all that is about to change, experts say. The brain in an advanced industrial robot today works at about 10 MIPS — no smarter than an insect. Some analysts say faster processors will allow robots to evolve to reptilian, then mammalian and finally human intelligence over the next 40 years. **» 82**

QUICKSTUDY

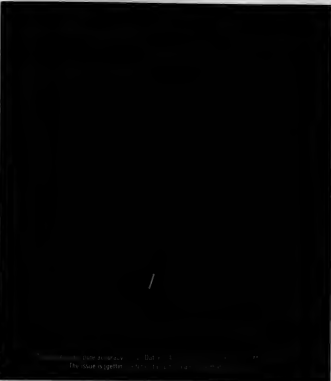
Digital video is the representation in ones and zeros of a video image for display on a digital monitor. But its real significance is the way it enhances the capabilities of the video format, in terms of editing, richness of content and dissemination. **» 83**

OPTICAL ANSWERS

Optical networking has been around for years. Developments in optical switching and dense wavelength division multiplexing promise to eliminate some of the bottlenecks between corporate networks. **» 84**

REMOTE AIR CARE

Advanced Pollution Instrumentation says its remote global air-quality monitoring network, aided by code-activated switches, save hundreds of thousands of dollars annually. **» 86**



TIME STAMPING MAKES ITS MARK

AS ELECTRONIC TIME STAMPING becomes more critical, companies like year-old Datum eBusiness Solutions are poised to make their marks in the precision-timing industry. Datum wants to bring the business world a sort of electronic postmark: a secure, auditable time stamp. The need for such a tool is clear, but the field is crowded, and it's fair to guess that if you wait a while, the prices and complexity of time-stamp tools will decrease.

88

Meet and hear the best IT Leaders this June!

CONFERENCE AGENDA

COMPUTERWORLD 100 PREMIER IT LEADERS CONFERENCE

June 19-21, 2000
Marriott Desert Springs
Resort & Spa
Palm Desert, CA

At Computerworld's Premier 100 IT Leaders Conference, June 19-21, 2000 at the Marriott Desert Springs Resort & Spa, you'll meet and learn from the finest leaders in information technology today. Since many who will attend and present will be Computerworld's Premier 100 IT Leaders - Fortune 1000 IT executives honored by Computerworld as outstanding practitioners of leading-edge IT - you'll see early adopters of technology and business-savvy executives who excel at leveraging strategic information resources.



70000 Country Club Drive
Palm Desert, CA 92260
USA
Call 1-800-361-0113
for hotel accommodations.



* Paid conference registrants will be entered into a drawing for one of the new handheld computers. Register for the event being presented by Palm, Inc. All conference participants are invited to the Palm® Mobile Solutions Summit.

Thursday, June 18, 2000

12:00pm - 5:00pm
Registration

7:00pm - 8:30pm
Pre-Conference Networking Reception

Monday, June 19, 2000

8:00am - 8:00am

Webcast and Opening Overview
Marylou Johnson, Editor-in-Chief
Computerworld

8:00am - 8:00am

Opening Keynote: "IT Leadership vs. E-Leadership"
Charles F. Landrum and James CIO, Delta Airlines
CEO, The Felt Group

8:00am - 11:00am

"The Internet Trade Show: E-Business"
Tommy Pappas, Managing Editor
Computerworld
E-COMMERCE
Panel: Robert Schuchman, VP & GM, Amazon.com; + Jeff Bezos, CEO, Amazon.com; + Michael D. Cusumano, President, Microsoft; + John Naisbitt, VP of Information Management, IBM; + Bruce Davis, VP of Information Management, IBM

11:00am - 12:00pm

Insider View: "Raytheon Corp.'s Unfolding
E-Business Strategy"
Eric Singleton, Director of Global E-Business
Raytheon

12:00pm - 1:00pm

Interactive Luncheon with IT Leaders

1:00pm - 5:00pm

"Cybersecurity: Security: Will the Personal Survival?"
Security Day, President
Computerworld
SECURITY
Panel: Stephen B. Schwartz, Director of Security, IBM; + John Naisbitt, VP of Information Management, IBM; + Bruce Davis, VP of Information Management, IBM

5:00pm - 6:00pm

Afternoon Keynote: "Innovation & Change"
Therese May, VP of Research
Cambridge Technology Partners

6:00pm - 8:00pm

NCR Presentation
Palm Mobile Solutions Session

8:00pm - 8:30pm

Expo Open and Reception/Buffer Dinner

Tuesday, June 20, 2000

8:00am - 8:00am

Remarks and Day Two Overview

8:00am - 8:00am

Keynote
David Lunt, CEO
Toshiba

REGISTER TODAY

Registration fees include entrance to Computerworld's Premier 100 IT Leaders Conference and all meals and networking receptions.

Premier Sponsors:



Official Mobile Solutions Provider:



Official Webcasting Provider:



Additional Sponsors:



ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

ASPs

Panel: Peter Seidel, COO
Once Systems

3-D Web Site Helps Make Clothing Stand Out

British company uses innovative technology to sell shirts over the Web

BY SAM LAKE

FACED WITH flat sales, a U.K. shirtmaker is using 3-D images on its Web site to expand into new markets.

Charles Tyrwhitt in London is using 3-D images as it moves into the U.S. and Europe. With improvements in technologies such as streaming media software and data caching, even users with 56k bit/sec. modems can download the images without an agonizing wait.

On the new site, when a visitor selects a shirt with desired details, such as collar style, fabric and color, a 2-D image appears.

If he clicks on the 3-D button, the shirt is shown in 3-D in a separate window. The user can manipulate the image with his mouse, turning the shirt to see it from any angle. A combination of keystrokes and mouse clicks can bring the shirt close enough to see its texture.

James Stewart, Tyrwhitt's vice president of sales, was charged with developing the firm's first Web site, which went live in April 1998.

After 10 years of an average 44% annual growth, sales plateaued at \$20 million in 1997, Stewart said, and he wanted to boost sales by expanding into the U.S.

The original Web site was a good beginning, he said, but "we couldn't update images and text on our site without going through our Web-hosting service, and that made it slow and cumbersome. We weren't operating in-time."

And because of the slow updates, he said, offers, sale prices and promotions that were available to catalog and store shoppers weren't available to online shoppers.

A friend of Stewart's who worked at Islandia, NY-based Computer Associates International Inc. said CA's object-oriented development environ-

ment, Jasmine II, could help solve the update problem.

That's because all information about a company's products, both textual data and pictures, are objects in the Jasmine II database, Stewart said. Since changes to an object are automatically reflected wherever that object is used, a change in the price of a shirt, for example, would automatically show up on the Web site.

At the same seminar where he saw Jasmine II, Stewart also saw 3-D images that were developed by CA subsidiary Viewpoint Digital Inc. in Draper, Utah, and that were streamed using technology from MetaCreations Corp. in Carpinteria, Calif.

Viewpoint was already using a point digitizing tool to create 3-D mesh skeletons of hard objects, such as digital video disc players. A grid is drawn over an object, and a tool similar to

a digitizing pen takes readings at the grid intersections and transmits them to the computer to create a mesh drawing. Texture is then mapped to the mesh drawing.

An object with hard, unchanging surfaces is easier to collect measurements than an object such as a shirt, which changes its shape as it moves or as it's touched by a digitizing tool, said Steve Wallock, ViewPoint's vice president of virtualization solutions.

To accurately depict the draping of the shirt, Viewpoint uses a scanner that measures the surface of an object by bouncing

light off it and capturing the flowing, irregular shape in a very high-resolution image. An artist then adds surface features such as color or tex-



3-D IMAGES are helping Britain's Charles Tyrwhitt reach the U.S. market.

ture to the image, while also removing unnecessary portions of the underlying grid to reduce the file size.

The image is stored on the Web server as a MetaStream 3-D file and delivered to the site visitor's desktop "using a progressive streaming technology," Wallock said.

If trends reported by Internet research firm eMarketer in New York are an indicator, many business-to-consumer sites must offer stepped-up service and images, if they hope to compete effectively.

By 2003, business-to-business e-commerce will swell from 80% of online sales to an estimated 87% and \$1.3 trillion, eMarketer said in a recent report. But business-to-consumer e-commerce revenues will grow at a much slower pace, to an estimated \$188 billion globally in 2003, the report said.

"Despite substantial growth in [business-to-consumer] e-commerce, however, buying online remains an activity that only 8% of the world claims is a reason they log on to the Internet," eMarketer said.

The visual impact of 3-D images affected more than just shoppers and retailers. Among those watching a recent demonstration of the technology was Otter Expedel, a manager at Norwegian offshore oil company Telenor AS. "I didn't come to see this," he said, shaking his head, "but this is impressive; this is the future." ■

BRIEFS

Fifth Annual Database Scalability Program

Winer Corp., a Waltham, Mass., consulting firm whose research examines the impact of large database technology on e-commerce, business intelligence and other major trends, has launched its fifth annual Database Scalability Program.

The program makes the frontiers of database scalability while analyzing the technical and business characteristics of the world's largest databases. Information for the research is compiled from questionnaires returned by organizations around the world and covers issues such as database growth rates, computing environments, workload levels, Internet use, sys-

tem architectures and management practices.

End users can use program findings to make technology decisions and build business cases while industry suppliers use the results to understand the challenges and requirements of their customers.

Participants can receive up to \$200 for submitting a survey, until the cutoff date of Aug. 15. Program details and the questionnaire are available at www.winercorp.com.

LSI Launches New Storage System

LSI Logic Storage Systems Inc. has rolled out the MegaRAID 6440 storage system for users such as e-commerce, data warehousing and data archiving and postproduction. It features eight Fibre Channel host con-

nections, as well as up to 220 drives per command module and 10 terabytes. Pricing is between \$320,000 and \$525,000, depending upon configuration. www.lsillogic.com

Three Net Products

Computer Network Technology Corp. in Minneapolis has rolled out three products: UltraNet Open Systems Director 2.4, UltraNet Open Systems Gateway 2.2 and UltraNet Open Systems Router.

Director is a switching platform for storage networks that supports Fibre Channel over T3/E3 and Asynchronous Transfer Mode wide-area connections.

Gateway 2.2 is a wide-area network product that allows Unix and Windows NT servers access to remote Fibre Channel or SCSI disk and tape storage systems. The

router enables conversions from local SCSI to Fibre Channel to build storage-area network infrastructures. All three products are currently available. Pricing for Director starts at \$75,000; Gateway begins at \$33,000; and the router at \$7,800. www.cnt.com

SOAP Considered As Standard

The World Wide Web Consortium last week acknowledged adoption of the Simple Object Access Protocol (SOAP). The development team for SOAP 1.1, an Extensible Markup Language protocol for exchanging information in a distributed environment, was led by Microsoft Corp., along with IBM and Lotus Development Corp. SOAP is still in the early stages,

with work to come in crucial areas such as security. The submission is available at www.w3.org/Submission/2000/05/.

New Java-Based Smart Cards to Arrive

Schlenker Technologies Inc. in San Jose has announced a new Java-based smart card that will let wireless device users roam between Time Division Multiple Access networks and Global System for Mobile Communications networks.

The Subscriber Identity Module smart card, called Stratus GAT, is the first to meet the new GSM/ANSI-416 interoperability tests standard, also known as GAT1.

Schlenkerberg gave no details on the release, but the company said the smart card will be deployed soon in the U.S.

Motorola, Certicom Ink Elliptic Crypto Deal

BY ANN HARRISON

In an effort to offer secure e-commerce on mobile devices over a range of wireless net-

work technologies, Motorola Inc. in Schaumburg, Ill., has announced an alliance with Certicom Corp. in Hayward, Calif.,

for a large-scale deployment of Certicom's elliptic-curve cryptography (ECC).

ECC calculates the number

of points on a curve and uses that information to generate keys to secure data. ECC is being watched closely by manufacturers of wireless products. The algorithms ECC uses to encode data require less com-

putational power than more conventional Internet coding, and could be better suited for lower-powered processors in wireless devices. Security is expected to be a key to the success of "m-commerce" conducted over mobile devices.

However, the strength of ECC has been questioned. Last month, for example, a large distributed network of worldwide computers cracked 109-bit ECC key in a Certicom-sponsored challenge known as ECC2K108. According to the French National Institute for Research in Computer Science and Control (INRIA), which announced the results, the 109-bit key was discovered in a four-month brute-force effort by 9,500 computers.

INRIA member Robert Harley said the computation was only about one-tenth of what normally should be required to crack a 109-bit curve, because Certicom chose a curve with properties that helped speed the attack. He said the challenge highlighted the weaknesses of some curves with special properties and that random curves are best for optimal security.

If Certicom had used different curves or a random curve, the challenge wouldn't have succeeded, said Richard Depew, executive vice president of field operations at Certicom. He noted that the National Institute of Standards and Technology has endorsed 163-bit ECC and Wireless Application Protocol standards that will be used with the devices.

But some question the possible ECC weaknesses the challenge revealed. "I would not want a security code that can be broken with today's technology in four months on any of my devices or systems," said David Cafaro, an information technology manager.

Depew argued that over the next decade, as parallel computing systems get stronger and more computing power can be gathered in distributed networks, no encryption system will be infallible. He said such systems should be built to maintain confidentiality for a given time, not forever.

"If we make the assumption that 10 years from now there will be enough computing power to crack a 163-bit elliptic curve or 1,024-bit RSA, then we will go to 2,048-bit RSA or 192-bit ECC," said Depew. ■

Great e-Business Ideas Demand Great Execution.

Xpiredfoods.com
Your B2B Exchange for Outdated Foods

Sal Monella
President

13990 E. Main Street
Decatur, GA
www.xpiredfoods.com

1.800.XPIRED

Some Ideas Are Beyond Even Our Help.

idea.com.

1-877-407-idea



I am the common,
everyday vocabulary of commerce.
I am the language that articulated
the car you're driving,
shirt you're wearing,
book you're reading,
film you're watching,
product you're selling,
psychic you're seeing,
and swordfish you'll have
at that restaurant tomorrow.
I am the linchpin under all
the world's commerce.

Who is the linchpin under me?

We're investing 6 billion dollars in the most far-reaching deployment of broadband out there. We're one of the largest network integrators, and a provider of advanced, global eCommerce solutions. We're SBC. The combined strengths of Ameritech, Pacific Bell, Southwestern Bell, Nevada Bell, SNET and now Sterling Commerce. You're demanding more. **Start expecting more.**





IT LEADERSHIP is about using every opportunity—every technology—to reinforce your company's purpose. It's about defining business imperatives and driving the acquisition of the right technology. But the daily demands of running a company and an IT infrastructure don't always allow the time to get up to speed on the latest innovations.

As Director of the AMS Center for Advanced Technologies, Dr. Butler's mission is to increase our understanding of emerging technologies. "Ours is a commitment to keeping AMS clients on the frontier of IT practice," she says. "To address technologies that will fundamentally change the business landscape."

YOU CALL THIS WORK?

**MONTHS BEFORE MOST OF US SEE THE LATEST TECHNOLOGY,
DR. BUTLER GETS A PEEK AT THE REALLY INTERESTING STUFF.**

For example, her team's initial XML research yielded an intelligent agent that collects relevant information across multiple sources then synthesizes, categorizes and disseminates it based on a user's specified interests. "Our Next Generation Enterprise and Business Intelligence & Knowledge Management labs are collaborating now to evaluate emerging non-numeric mining tools," she proudly reports. "We'll be releasing the results soon."

And where does Dr. Butler gain her understanding of emerging technologies? From her peers, at conferences, from the Web and from Computerworld. The Newspaper for IT Leaders.

COMPUTERWORLD
THE NEWSPAPER FOR IT LEADERS

Net Attacks Spark New Security Services

BY LEE COPELAND

In the wake of the recent spate of virus and denial-of-service attacks, new security services

are cropping up to augment existing Internet security preventive measures. Dublin, Ohio-based start-up

LogiKeep LLC offers its customers early warnings about security threats, such as the "Love Bug" virus, through a se-

cure Internet pipe. And Atlanta-based Insuretrust.com LLC offers lost income and lawsuit liability insurance to e-commerce companies.

Matthew Kovar, an analyst at The Yankee Group in Boston,

said that because so many viruses slip past firewalls and because it takes time for traditional antivirus firms to update their script filters and notify customers, new Internet security services are evolving. These include insurance offerings like that of Insuretrust.com and early-warning services like LogiKeep's.

Security intelligence firms "fall raison d'être is to identify, as soon as possible, what is going on with new viruses and [to] stay ahead of the curve in terms of identifying a problem," said Kovar.

Immediate Alerts

LogiKeep offers a subscription-based information and analysis service called Early Warning Security Network. A LogiKeep team scans the Web and global alert centers for data on security problems. It then reports the information back to customers in real time through a secure Web connection. As new data about emerging security issues is gathered, updates are sent to clients whose network profiles indicate that the problem threatens their systems.

Insuretrust.com policyholders pay approximately \$7,500 annually for \$1 million worth of coverage for business losses resulting from denial-of-service attacks, according to company officials. The company also offers policies that cover customers for lawsuits stemming from inappropriate use of private information. Only companies whose networks and e-commerce systems meet Insuretrust's security standards qualify for coverage.

Insuretrust.com's security team performs an in-depth network security assessment that includes remote scans of Web and intranet sites, examination of organizational controls and end-user training. The team also assesses physical facilities.

Duane Craker, support center manager at Ecobal Inc., a maker of industrial cleaning products in St. Paul, Minn., said security insurance makes sense, but he wouldn't buy a policy.

"What is important is to spend money on keeping customers," said Craker. "The insurance company can say, 'Here's the insurance money'... but the customers may never come back." ▀

HOW WILL YOUR IT STAFF SUPPORT
THE INCREASING AMOUNT OF ENTERPRISE
TECHNOLOGY WITHIN YOUR ORGANIZATION?



ITInfoSource.com
Enterprise Systems Support for IT Professionals

INSTANT RESOLUTION TO
ENTERPRISE TECHNOLOGY ISSUES
THROUGH A SINGLE SOURCE!

ITInfoSource.com is a revolutionary new IT support service. Our online application empowers our customers with the intellectual capital of a global network consisting of over 2000 world-class technicians managed and incented by ITInfoSource.com. This group of technicians known as the G2000, support all types of mission critical hardware, software, and networking environments. For more information visit www.ITInfoSource.com

ITInfoSource.com
Enterprise Systems Support for IT Professionals

WHEN

DATA

ONE PLACE,

IT'S MAGIC.

IBM DELIVER
ONLINE - IN INT
AVAILABLE
WHETHER IT'S A
IBM STORAGE SERVICES ARE THE BEST
FOR YOUR BI, CRM AND SAN NEEDS. TO LEARN
SIGN UP FOR A FREE TELESEMINAR ON HOW
CAN IMPROVE YOUR e-BUSINESS, LOG ON TO
ibm.com/storage/magic

IBM

B.M.

business storage services

technology innovation

IBM Launches Distance-Learning Unit, Software

BY THOMAS HOFFMAN
PALISADES, N.Y.

IBM has launched a business unit aimed

at helping corporate customers plan, develop and deploy distance-learning capabilities for their employees.

The IBM Mindspace Solutions unit was ushered in at an IBM executive conference center here last week. IBM and its Lotus Development Corp. subsidiary, however, have been developing and deploying distance-learning systems and services since late last year. Customers have included Saab AB in Linköping, Sweden, and Metropolitan Life Insurance Co. in New York.

Now, through the Mindspace unit, IBM is delivering a "blended" electronic-learning product line that lets users provide collaborative or self-paced instruction for employees and distributors via the Internet and groupware technologies such as Lotus Notes, said Michael Zisman, a knowledge management manager at IBM.

One of the new technologies introduced last week is Lotus LearningSpace 4.0, a distance-learning application that includes built-in tracking and management capabilities.

IBM officials didn't disclose detailed pricing, but they said the software will cost less than \$100 per user.

The application allows users to control the speed of their learning either by using self-paced materials or by interacting with others in a virtual classroom, IBM said.

The highly fragmented distance-learning market is expected to reach \$15 billion worldwide by the end of 2002,

according to International Data Corp. in Framingham, Mass.

Several early customers gave live and taped testimonials to support the notion that collaborative and self-learning tools can reduce the time and money it takes to train employees.

For example, Southwestern Bell Telephone Co. in San Antonio, one of IBM's earliest electronic-learning customers, has invested roughly \$3 million in distance-learning systems to train its customer service personnel.

Service improvements and other efficiency gains are expected to help the telecommunications firm generate \$5.4 million in annual savings, said John Fox, a manager at Southwestern Bell's customer service division.

By using distributed education tools, Unipart Group Ltd. expects to "reduce the time it takes people to learn ... which will help us improve faster than our competition," said Frank Nigriello, corporate director at the U.K.-based automotive supplier.

Herman Miller Inc., a \$2 billion Zeeland, Mich.-based office furniture manufacturer, has been using an IBM electronic-learning system since November and already has 2,000 registered users — mostly furniture distributors — who can choose from more than 60 virtual classes about its products, said Mabel Casey, director of customer care and training at Herman Miller.

The system already has gained "tremendous acceptance within our dealership community," she added. ▀

Just a reminder
the next time you think Oracle
has the only e-commerce solution.

**96% of the
Fortune e-50
run Oracle and
96% of the same
Fortune e-50
run Microsoft
SQL Server.
Apparently,
the Internet
is big enough
for both of us.**

Microsoft
Where do you want to go today?
microsoft.com/sql/success

FOR ROAD WARRIORS

RCA Corp. has announced that in the fourth quarter it will introduce the Docuport, which the company says will allow businesspeople to take some essential office equipment on the road. The device will function as a printer, fax machine, copier and scanner and will compact to 12 by 3 by 1.24 in. and fit into a briefcase. The Docuport will connect either directly to a phone line or to a computer using a standard phone line and parallel port interface. Its suggested retail price will be \$299.



JON UDELL

Digital IDs matter

HERE'S A MESSAGE I hope I'll never have to send: Hello. You're in my address book and therefore have probably been sent an e-mail "from me" containing a zipped attachment — which I supposedly received from [Sender], [Title] at [Prominent]

Company].

Do NOT open the zipped attachment — this is the worm virus in the news. Simply delete the e-mail. Sorry, [Victim]

I received this pathetic missive in the wake of the so-called Love Bug's predecessor, ExploreZipworm.

These worms, while clever, are more socially than technically adept. A victim is attacked by a message that seems to come from an acquaintance. In reality, of course, the poisoned message comes from a trusted person's machine, not that trusted person.

After the Love Bug, experts made the same tired recommendations we always see:

- Disable macro languages.
- Ban attachments in corporate environments.
- Don't open any attachment you aren't sure about.

Will we ever learn? This isn't really about viruses and worms at all; it's about identity.

You probably do most of your business through e-mail, where you're represented by nothing more than an e-mail address. Everybody knows it's trivial to forge an e-mail address, and we now know it's also far too easy to hijack somebody's e-mail program. Sadly, a solution has been widely available — and almost universally ignored — for almost five years.

Since 1996, the e-mail clients bundled with both Microsoft's and Netscape's browsers have enabled us to digitally sign our messages and thus prove our identities to recipients. I sign all my e-mail messages, but I can count on the fingers of two hands the people who have ever sent me signed e-mail. Leave out cryptography experts, and I only need one hand.

To sign your e-mail, you need a

client certificate, a.k.a. digital identification. These are like the server certificates that secure Web sites use to support Secure Sockets Layer (SSL) connections. But server certificates do more than just activate SSL. They also authenticate servers to clients — that is, they prove to

your browser that it's really connected to Amazon.com and not to some rogue site.

The dirty little secret of e-commerce is that clients aren't authenticated to servers. You know that Amazon.com is Amazon.com, but it doesn't know who you are; it knows only that you're somebody's valid credit-card number. Why not use a client certificate? It takes effort to ac-

quire and use one, and nobody wants to slow the e-commerce juggernaut by asking people to make that effort.

It's long past time to rethink this lazy approach. The same client certificates that could help stem the growing tide of online credit-card fraud could also ward off these e-mail hacks. You can get a basic client certificate from VeriSign Inc. (www.verisign.com/client/index.html) for \$15 per year. Or you can get one for free from Thawte Consulting (www.thawte.com/certs/personal/contents.html), which is a VeriSign company. At these sites, you fill out some forms, receive a certificate and install it into your browser. A basic certificate attests that the e-mail address it's bound to is the same one used to request it. That's a weak assurance of identity, but it's infinitely better than none. You can, of course, pay more for stronger assurance backed by real notaries and real paperwork.

How would digital signing have thwarted the Love Bug? I've configured my e-mail program to sign all outbound messages. Plus, I use the

most stringent signing policy, which requires me to type the digital ID password once per message. A hassle, sure, but it beats wrecking my colleagues' disks and reputations.

People regard digital signatures as

a geeky affectation. We should see them as a mark of professionalism. If we're doing business by e-mail, we should expect proof of one another's identities, and we should want to offer such proof ourselves. ▀

Just a reminder
that when it comes to B2C apps,
it's the software, baby.

The majority
of the top
100 Media Metrix
shopping sites
are built on
the Microsoft®
Windows® DNA
development
platform.

Microsoft

Where do you want to go today?
microsoft.com/dna



Jon Udell is an independent Web/Internet consultant and the author of *Practical Internet Groupware*. Contact him at judell@earthlink.net.

Dreams, Freaking Magic And Subnet Masks

Week 11: Pat plugs a back door with a four-port Ethernet card and wastes a day off debugging

OUR PURCHASING agent's office is four doors down from mine, so I can clearly see all the deliveries made to his door. With my binoculars I can even read the labels on the boxes.

Right now, I can clearly see two stacked boxes with the words "Nokia IP 440" painted on all sides. These babies, which combine high-performance IP routing with a complete implementation of Checkpoint Software Technologies Ltd.'s Firewall-1 enterprise security suite, would give me expansion capabilities to burn.

I feel myself getting up out of my seat and walking toward them, ignoring my boss, who asks me to step into her office as I walk by. I finally reach the boxes, and the shipping label says, "To: Pat Rabinlinsky." Well they spelled my name wrong, but who cares? I just got what I have wanted for the past two months.

Only a Dream

RRRIINGG! My alarm clock goes off. It was just another fantasy about having all the budget I need to buy anything I want.

I really wanted those Nokia 440s, but, alas, it wasn't meant to be. As I have mentioned before, we run FireWall-4 Version 4.0, but one of our remote sites was getting a TI and it connects back to us via three 56K bit/sec. dedicated circuits. My problem is that the TI it uses to connect to the Internet runs through a Raptor Firewall from Rockville, Maryland Ascent Technologies Inc. I don't know much about the firewall and have no control over it. This creates a back-door security hole I need to fix, pronto.

Well, being the budgetary hero that I am, I searched the Web and found that Milpitas, Calif.-based Adaptive Inc. manufactures a four-port Ethernet network interface card called the Quartet4. It would let me create a fourth port on our existing firewall through which we can run their 56K bit/sec. circuits, establishing the same level of security for traffic coming from the re-

mote site's Internet connection as coming from ours.

Less Expensive Fix

I figured, "What the heck." At \$500 each, I could buy just two—one for the firewall and one for the lab firewall. At this point, I had already done my testing and the card worked great in the lab environment, so now it was time to put that bad boy in the real firewall.

Now, being the lazy admin that I am, I didn't want to have to rebuild our system from scratch with the policy and all of our objects (ports, workstations, networks and users). So I copied them from the old firewall and installed them, along with FireWall-1, Windows NT and more, on a new firewall. Then I went on a Sunday and subbed out the old firewall with the new one.

Even after some tweaking, I could get out of our network to the Internet, but nothing could get back in, and I couldn't get our DMZ, a separate network separated from our core intranet. Weird — had I done something wrong? Of course I had. I checked my IP addresses and subnets on all the ports on the network interface card, and yes, I had left a very important digit off the subnet mask, which steers traffic to and from the DMZ. OK, reboot and try again. Still nothing could get in, but I could get out.

Help, Boss!

I called my boss at home and asked her what she thought might be the problem. After doing a series of trace routes to see what packets were getting where in the network and ping-pong to see what parts of the network were alive, we still didn't know why we couldn't receive packets from the outside.

At this point, I went ahead and put our network back on the old firewall. Then, for some reason, all our workstations that use network address translation couldn't get out. We decided to just wait till Monday to fix it. When I arrived on Monday, everything was working just fine. Weird. I could put it

to FM (freaking magic) and hoped I could come up with a reason next week when I'll try again to replace the firewall.

If you remember from a couple of weeks ago, the last administrator couldn't get our virtual private network (VPN) to work because there was no license installed on the firewall. We paid for one, but our reseller didn't give us the license. We had to go through a lot of hassle to figure this out, and the vendor, Internet Security System Inc., was little help in figuring this out. On top of that, you have to go through an arduous process to get the license key.

Well, we have it installed, and my boss asked me within what time frame I could install the necessary access rules on the VPN so we could start testing it.

I said at least two weeks, four at the longest. First, I needed to plan my strategy for the VPN. I didn't want to begin testing without planning how to manage what could be a huge job of managing the database of users' access rights, passwords and other things. If I have to manually add and delete users and passwords, without being able to pass the job along to the help desk, then I have just created a nightmare administration job for myself.

Easier VPNs?

I was hoping to handle the VPN administration with a Shiva LAN Rover D56 dial-up access switch I bought two years ago, along with the Shiva Access Manager (SAM) 4.5 software from Intel Network Systems Inc. in Bedford, Mass., formerly Shiva Corp. The salesman said that if I ever get into VPN, the SAM had a Radius server built into it, which I could use as a middleman to centrally manage access rights not only for the LAN Rover, but also for our Windows NT domain controllers and our VPN. Pretty slick actually. Now, if I can just get FireWall-4 to act as a proxy for the Radius server and then get the Radius server to act as a proxy to the NT domain, I'm all set.

For now, though, I will just create one user on the firewall and work my way up from that point. It's extremely important when testing anything to try the smallest and least amount of functionality or features first, then work your way up to where you want to be. This way, as you add more complexity to a project and it fails, you should be able to troubleshoot it easily.

Sounds good in theory, huh? Anyway, until next week. ■

THISWEEK'SGLOSSARY

Freaking magic: Polite term for vulgarism used by help desks to explain why computers or networks inexplicably fail to operate properly.

Network address translation: Changing the network addresses that identify users on a corporate network into different network addresses when those users access the Internet or other outside networks. Used when internal network naming schemes would conflict with those used on other networks.

Network interface card: An add-in circuit board that plugs into a server or PC to allow access to a computer network.

Proxy: The use of one computer to act as a substitute for another computer, to reduce the need for multiple pieces of equipment. Also reduces the work of managing equipment.

Radius: An Internet protocol for carrying authentication, authorization and configuration information between a network access server and an authentication server.

Shiva Access Manager: Software from Shiva Corp. (now owned by Intel Corp.). It provides authentication, authorization, accounting and policy management for enterprise and service providers.

Subnet mask: A method for splitting Internet Protocol networks into smaller groups called subnets. A subnet mask is a pattern that's matched with the IP address to use part of the host address field to identify the subnets.

Virtual private network: A private, secure network configured within a network shared by other users.

LINKS:

www.ascent.com/News/Products/Firewall/Firewall.htm Technical information and other information about Raptor Firewalls from Ascent Technologies Inc.

www.adaptive.com/products/detail/quartet4.htm Information about the Adapter four-port Ethernet network interface card.

■ This journal is written by a real security engineer, whose name and employer have been disguised for obvious reasons. It's posted weekly at www.computerworld.com and at www.sans.org to help you and our security manager — let's call him Pat — better solve security problems. Contact Pat with comments or advice at pat_rabinlinsky@compuserve.com, using "Pat's Journal" in the subject line.



WHY FINNAIR IS GOING WITH OUR E-BUSINESS SOLUTIONS FOR THE LONG HAUL

When Finland's national airline was looking to lift long-distance cargo sales, it looked to e-business technology. And that meant Unisys. Our solution? The Unisys e@ction Internet Commerce Enabler. A unique application that

allows Finnair's partners and clients to place orders and track cargo status and location via the Internet. What's more, we integrated this e-business solution into Finnair's existing systems. So the airline's Web-enabled cargo operation could be up and flying quickly and economically. All of which puts Finnair miles ahead of the competition. But that's what you'd expect from the people who are always ready to go the distance for their clients. www.unisys.com



UNISYS

We eat, sleep and drink this stuff.

©2000 Unisys Corporation. Unisys is a registered trademark and e@ction is a trademark of Unisys Corporation.

Leave Your Laptop At Home

With so many business travelers using their hotel rooms as offices-away-from-home, hotels are improving their technology amenities. By Amy Helen Johnson

THE NEXT TIME you check in to a hotel during a business trip, don't be surprised if the desk clerk hands you a laptop along with your room key. Hotels that cater to business travelers are installing new network infrastructures and developing new guest programs — such as offering loaner laptops — to make their properties more business-user-friendly. The renovations range from wiring for high-speed Internet access to providing full computer, Internet and LAN facilities.

What's driving the technology boom at hotels is the realization that good computer facilities can help capture a larger chunk of the lucrative business travelers' market. A survey that Opinion Research Corp. in Skillman, N.J., recently conducted for Integrated Network Technologies Inc. in Encinitas, Minn., found that 66% of

the 300 frequent business travelers polled said they would choose a hotel based on its in-room technology services. Seventy-three percent said they wished that available services were better.

Faster, Faster, Faster

The most common improvement hotels are making is the installation of high-speed Internet access, such as Digital Subscriber Line service. T1 lines and broadband connections. What's making it easy for hotels to offer these alternatives is the emergence of companies, such as Tut Systems Inc., Suite Technology Systems Network and Wayport Inc., that specialize in retrofitting hotels with network access. By relying on Ethernet and Universal Serial Bus connections for now, while developing wireless services for the future, these services let travelers with network-enabled

laptops plug into the hotel's LAN through ports in the rooms to reach the Web.

Hotels are also catering to those who travel without laptops, offering in-room systems such as those provided by Sioux Falls, S.D.-based LodgeNet Entertainment Corp., or supplying loaner laptops, as is the policy at San Francisco's Nob Hill Lambourne. The disadvantages of these types of solutions for business travel-

ers is that they usually offer only Internet access, Post Office Protocol mail services and popular productivity software; using corporate e-mail and specialized applications and data is difficult. In addition, TVs often serve as the monitors for in-room systems, and they suffer from the low resolution of today's TV technology.

But savvy hotel managers recognize that pure Internet access is of limited use to their business traveler guests. The key need of these customers is connecting to headquarters. Virtual private network (VPN) facilities aren't yet common, but they are on the rise. LodgeNet, for example, and Data-Valet, a service offered by Bell Nexia (the data communications arm of Bell Canada International Inc.) and joint-venture partners, offer VPN access to laptops hooked into their Internet services.

Hotel Help Desk

Hotels are also paying attention to the needs of computer users when they're outside their rooms. Some now offer network access in conference rooms — and even restaurants. The Sheraton Centre Toronto Hotel added Internet access ports at tables in the Bistro on Two restaurant so that diners can work or play online while they eat. Seattle's Hotel Elliott, a 424-room facility scheduled to open next April, will offer wireless access throughout the building, enabling travelers to work on laptops in the lobby (see related story, next page).

The lobby is also the likely spot for Internet-enabled kiosks that will allow guests to access their own records for tasks such as checkout; to find out about the hotel, such as the location of the fitness center; and to search for nearby restaurants and entertainment.

Office on The Road

Here are new computer services being installed by some of the major chains favored by executives. Because chains are often operated as franchises, however, amenities may be offered only at certain sites.

- **Hyatt:** In-room multifunction printer/copier/fax machines, high-speed Internet access and video-on-demand
- **Hilton Hotels Corp.:** In-room computer system with Internet access and office applications
- **Intercontinental Hotels:** Help staff, high-speed access
- **Marriott:** High-speed access via Ethernet or USB ports
- **Radiisson Hotels:** TV-based Internet access, kiosks, high-speed access
- **Radisson Hotels:** High-speed access via Ethernet or USB port
- **Ritz-Carlton Hotel Co. LLC:** Help staff, high-speed access
- **Sheraton:** High-speed access
- **Westin Hotels:** High-speed access, Internet access in conference rooms

But the main activity is renovating conference centers, which traditionally have been wired by hand for each group using them, resulting in snaking lines of duct tape pinning cables to the carpet. Hotels now are planning conference rooms that include desks with integrated electrical outlets and network ports, and they're adding videoconferencing facilities and projection technology to match the facilities in modern office buildings.

With the technology at hotels getting more and more so-

Beyond the Business Center

The days are long gone when services for business travelers meant a converted brown closet off the lobby where you could find a floppy disk or your laptop. The latest trend in the hotel industry is to offer computer services that mimic those provided by your company's IT department.

- **Networks:** High-speed Internet

- access and wireless networks to get you connected to headquarters;
- **VPN capabilities:** bandwidth to the room that supports video and voice
- **Internet access:** in-room systems that use the TV and wireless keyboards for surfing
- **Equipment:** Loaner programs that provide laptops with standard

office programs and modems

- **Help desks:** On-staff expertise to help you connect to the network and the Internet or to diagnose application problems

- **Intranets:** Kiosks in the lobby to access hotel information and local travel guides; kiosks on the local server to show personnel and reserve public or limited access lines such as conference rooms

—Amy Helen Johnson

E-Hotel

phisticated, visitors are running into connectivity problems. Several hotels have hired help desk staff, sometimes called computer concierges, to unravel any trouble that guests have with their computers or with the hotel's network.

At the Four Seasons Hotel Chicago, information technology manager Mike Demir and two other IT staffers are available to guests from about 7 a.m. to 7 p.m. Demir's main job is to support the hotel's back-office systems, but for the past 18 months, he says, he's been able to help guests with a variety of problems, including fixing a recalcitrant TelePrompTer, lending a laptop power supply, and resetting dial-up properties for the many guests who stumbled over their laptops' modem settings. For less urgent tasks, he directs guests to the hotel's staffed business center. Eventually, the business center will have a full-time IT staffer to take over guest support, he says.

Before You Go

These new technology services won't appear at all hotels, even those that are part of a chain. That's because hotel owners often pay for the use of the hotel brand name, and each owner makes individual decisions about amenities at his hotels. Plus, many owners choose to upgrade only a portion of their rooms, based on the theory that not all guests will require the extra services. So before you go, find out what amenities are available in the room you reserve.

Also, check which services are included in the room price. There are three cost models: Some hotels charge an extra flat fee for business-class rooms, such as Chicago-based Hyatt Corp.'s \$20 fee to upgrade to the Business Plus; some charge for specific extra services, such as Marriott International's \$9.95 daily fee for high-speed Internet access; and some charge a premium room rate, such as Seattle's new Hotel Elliott's anticipated \$350 per day rack rate and the Chicago Four Seasons' \$450 per day rate for its Technology 2000 suites. ▀

Johnson is a Computerworld contributor based in Seattle. She can be reached at amyhelen@pobox.com.

Dick Hedreen is taking a gamble. He's building a luxury hotel that will offer guests new technology, hoping that the premier computer facilities will lure always-on-the-road warriors, dot-com millionaires and other laptop-toting travelers to his Hotel Elliott in downtown Seattle.

R. C. Hedreen Co. owns two other hotels in Seattle - the Seattle Hilton and the Madison Renaissance Hotel. But the Elliott won't have a chain affiliation, says information technology chief Derek Bottles, so it needs competitive advantage beyond name recognition. The advantage chosen was technology, which the company hopes will swell the percentage of the more valuable business travelers and conference groups - which account for 33.3% of the guests at its other properties - to 60% at the Elliott.

The E-Service Menu

Among the services that Bottles is developing for the Elliott are 100M

bit/sec. high-speed Internet access, video-on-demand systems, limited videoconferencing in all the rooms; monitor-quality TVs - perhaps flat panels - and TV-based Internet and application access in every room; VPN facilities; wireless access throughout the building; Internet kiosks in the lobby; connectivity to the Washington State Convention Center across the street; a theater-style conference center with Internet-wired seats and built-in videoconferencing; customized applications that let guests tap into the back-office systems to order food and services and to pay bills; personal profiles in the guest database that specify guests' preferences for stocking the minibar and for room amenities; password-protected areas on the local hard disks for storing and retrieving files; and a nine-person IT staff that will serve both hotel employees and guests.

The idea for the Hotel Elliott began in 1996, when Bottles joined

the company to help upgrade its infrastructure. At the time, according to Bottles, the company can on a few outdated minicomputers that were kept alive by cannibalizing surplus machines for parts. As Bottles researched the company's needs, he kept stumbling across an unmet need to provide technology services to guests, he says. When Hedreen decided to build a new hotel in Seattle, he gave Bottles full rein to fill that need.

Preparing for Change

To keep from chasing an ever-out-of-reach definition of state-of-the-art, Bottles has laid out a strategy of overengineering the whole hotel. Where the recommendation was to lay one cable conduit, he put in four, he says. Fiber runs to every room, it's dark now, but Bottles feels that sometimes in the future the bandwidth will be needed.

All these technology features are going to cost about 5% to 7% of the total construction budget, Bottles explains. But he declines to provide any number more solid than "millions." Although pricing for each service hasn't been worked out, many services will be included in

the room price - the anticipated rack rate is \$350 per day for a standard room. Another possibility is to share costs with technology partners. Bottles says the tech-savvy businesspeople he hopes to attract will also form the market for the companies supplying the hotel's network hardware, servers and software. He's also investigating charging transaction fees for information services, such as making restaurant reservations through the hotel's Internet portal.

Although the bones of the Elliott and its computer network are already fixed in the Seattle skyline, the company is still working out the best choices for decor and computer services. In a room mock-up a few blocks from the hotel site, Bottles and the interior decorators are testing such details as the placement of electrical outlets and the usefulness of having an Internet appliance in the bathroom.

Whatever choices they make for the scheduled April 2001 opening of the hotel won't be perfect, Bottles says. But he's confident he has the infrastructure in place to make whatever improvements may be called for. - Amy Helen Johnson

DEREK BOTTLES, IT chief at R. C. Hedreen Co., is bringing technology to his company, making a competitive advantage.



The Robots Are Coming!

This time, the promise of robotics is real, experts say. By Gary H. Anthes

JOHN DOLAN SAYS HE wants to build a robot that can be flushed down the toilet—literally—to inspect sewer pipes. Tucker Balch proposes building a disposable robot airplane that could be dispatched by a forest ranger to check out a suspicious column of smoke. And Branislav Jaramaz envisions a RoboChef that can move around the kitchen and cook a meal. But he worries, “Who is going to build the robot to clean the mess behind this one?”

Dolan, Balch and Jaramaz were among 40 robotics researchers from Carnegie Mellon University’s (CMU) Robotics Institute who met recently at a faculty retreat near Pittsburgh to brainstorm about the future of their craft. Each was asked to outline a vision for a useful robot that could be built within the next five years.

But past prophecies about robots have been notoriously

off the mark. Experts in the 1950s predicted that robots would be vacuuming our floors, carrying out the garbage and doing other mundane chores in just a few years. A half-century later, we’re still waiting.

Experts in the 1950s and 1960s assumed that if computers could play chess and prove mathematical theorems—and they could then—it should be fairly easy to get them to help around the house.

“The impression was that computers were already at least as powerful as the human mind,” says Hans Moravec, a CMU researcher who has spent 40 years building robots. “But it’s much, much harder for a computer to vacuum the rug than to prove theorems. It’s only when humans do it that it looks the other way around.”

Moravec says the brain in an advanced industrial robot today works at about 10 MIPS—no smarter than an insect. But he says faster processors will allow robots to evolve to reptilian, then mammalian and finally to human intelligence over the next 40 years, when they will compute at 100 trillion operations per second (see chart). “By that time, the world economy will be fully automated, and human beings will be retired,” he says.

Moravec says he plans to produce by 2003 a 1,000-MIPS robot that will be able to navigate by 3-D images 1,000 times richer than the 2-D images that today’s robots use with limited success.

Shortly thereafter, Moravec says, he will produce a commercial product called a “navigational bead.” The size of a basketball, it will contain stereoscopic cameras, 3-D mapping and image-recognition software and a layer of application software. The heads will be retrofitted onto exist-

ing industrial vehicles such as robotic cleaning machines.

Today, those machines must be laboriously trained and calibrated at great expense. But with the big new brains grafted on, they will learn new routes after being led through them just once, Moravec says. At that point, the specialty market for robots will explode, he says.

Meanwhile, the Web could solve another fundamental problem with today’s robots. Although they can extract limited information from their en-

vironments via sensors, robots are constrained by the information built into them.

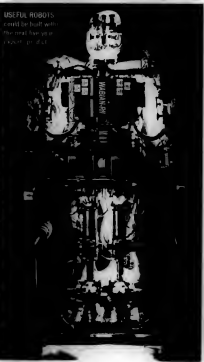
“[A robot] doesn’t have any way to go out and learn the information to add to its knowledge,” says David Bourne, a principal scientist at the Robotics Institute.

But now there’s a huge store of knowledge from which robots can learn, Bourne says. Many of the most important strides in robotics in the next few years will involve teaching robots to access the Web and to interpret and act on what they find there, he says.

But interpreting information extracted from external sources such as the Web is difficult for robots and is likely to remain so for a long time. Bourne says the best robots in the future will be those smart enough to ask for help.

One of CMU’s mobile robots does just that, he says. “It goes to the elevator, and if it senses people standing there, it says, ‘Would you push the Up button for me?’ because it doesn’t have an arm.”

USEFUL ROBOTS could be built within the next five years, experts predict.



Year	Robot	Capabilities
1999	Automatic Guided Vehicle	Single Application (vacuum cleaner)
2007	First-Generation Universal	Performs chores using user-loadable software
2010	Second-Generation Universal	Learns from its mistakes and adapts behavior
2030	Third-Generation Universal	Mobile by environment and simulates its actions
2040	Fourth-Generation Universal	Abstracts and responds from the real world

Digital Video

BY LEE COPELAND

DIGITAL VIDEO is simply a video image represented in digital form. The real significance of digital video technology is the way it enhances the capabilities of the video format, in terms of editing, richness of content and dissemination. In addition, it offers a way to view video images on desktop PCs and over the Web.

Digital video expands the uses of video in the corporate setting. No longer limited to special occasions, it can now be used on the desktop for conferencing and on corporate Web sites, says Steve Hoffenberg, an analyst at Lyra Research Inc. in Newtonville, Mass.

"In the pre-Web world, what you would do is produce a canned video for a television commercial or a marketing pitch at a trade show, and the potential audience outside of the commercial was small," says Hoffenberg. "With the Web throws in, video is wide open for brief or extended video clips on a Web site... to work toward that sticky-eye-ball phenomenon."

Digital video offers a number of advantages over its analog counterpart. First among them is durability. Digital media doesn't degrade when used, stored or duplicated. In contrast, analog videotapes wear down and are easily damaged when used frequently.

Mimicking Digital Effects

Once digitized, a digital video image can be cataloged, searched and embedded with additional information. For example, a single digital versatile disc (DVD) can be embedded with numerous foreign language translations and processing effects, such as changing the contrast in a video frame. These types of effects and editing capabilities, including layering effects and other manipulations, are much harder to produce on film or analog video.

In terms of special effects, digital video technology al-

DEFINITION

Digital video is the digital representation in ones and zeros of a video (i.e., televisionlike) image destined for display on a digital monitor. Because digitized video signals take up large amounts of disk space, they are usually compressed into any of a number of different formats, depending on the specific usage and storage medium.

Digital Storage Formats

How do you get digital video into your computer? And how do you send it to others? The high storage requirements of video make optical media the primary means of delivery, while online access is usually handled via streaming media to reduce the time needed for transmission before you can start viewing.

MPEG - A lossy compression method and standard for creating and storing digital videos on CD-ROMs and video CDs.

DVD - DVD originally stood for digital video disc, but as the technology became more applicable to computers, it became digital versatile disc. A DVD is a double-sided optical disc with the same dimensions as those of a CD. The storage capacity ranges from 2.6GB to 17GB, and DVDs come in a variety of formats, such as DVD-Video, DVD-ROM, DVD-RAM and DVD-Audio.

LASERDISC - A method for storing and viewing video on a large, optical disc. LaserDisc movies utilize the constant linear velocity format of concentric circles, which contains 108,000 frames per one hour of video.

STREAMING VIDEO - A method for transmitting digital video content over a data network from a server to a desktop client as a continuous stream, without the need for the client and to decompress the image. In a streaming-video environment, images are viewed directly over a high-bandwidth connection.

lows filmmakers to create images that would be impossible to conjure otherwise. Industrial Light & Magic, the San Rafael, Calif.-based division of Lucasfilm Ltd. that produced the special effects for *Star Wars: Episode I - The Phantom Menace*, estimated that 95% of the shots in the film utilized digital technology for the creation of animated characters and landscapes. The epic space odyssey was also the first feature film to premier not in film form but from a digital master file and on digital projectors.

And perhaps the biggest advantage of digital over analog is that digital video can be transported and distributed

over the Internet as packet traffic in file form or as streaming media. This allows digital video content to appear as video clips and in broadcasts on Web and intranet sites. These files can be cataloged, searched and disseminated repeatedly over the Web, without deteriorating the original digital image.

Squeezing Down

The biggest disadvantage of using digital video is that it occupies so much storage space. Full-motion video at VGA resolution (640 by 480 pixels per frame, or slightly better than normal broadcast TV) requires 55MB per minute of video. That's 3GB per hour,

and even the best DVD projection system can't hold that much. Just the thought of trying to pump that much over the Web would strain the best high-speed Internet connections. Therefore, digital video must be compressed. Unfortunately, compression can degrade the image quality, depending on the degree and method of compression.

The most common techniques use lossy compression, so called because some of the data gets lost during the process. Audio and video files can be compressed to a mere 5% of their original size using lossy compression, but the data loss is usually not detectable to the human eye or

ear at this level. Another type of compression, called lossless, ensures that no data is lost but it typically offers much less compression capability and may involve significant additional processing.

Analysts say that as bandwidth availability and quality increase along with the growth in use of cable modems and Digital Subscriber Line (DSL) connections, lossy compression methods, such as the popular MPEG, will give way to streaming-video broadcasts.

"The MPEG model of slowing downloading images [and] then playing them is going away," says Carl Garland, an analyst at Current Analysis Inc. in Sterling, Va. "IMPEG is a chunky, and [that's] the way it has to be now with dial-up [Internet connections]. But cable modems have the capacity to just play video over a high-speed connection. You view it the same way as cable TV."

Streaming Video

A few years back, videoconferencing was the shining example of digital video technology. But videoconferencing systems, which often required special hardware, a separate conferencing room and a dedicated network connection, proved too costly for most corporations to implement.

Analysts say streaming video will pick up where videoconferencing left off, because of its convenience and lower costs. Streaming video transmits the video in real time, as it was originally recorded, without the intermediate step of compressing the image.

"Videoconferencing was streaming video, but it was done over expensive, private lines that were difficult to get to work properly and required a studio served by satellites," says Garland. "With cheap bandwidth by a Fast Ethernet provider or through DSL, you can have that sort of quality of conference relatively cheaply over [network] lines, and you can use that line for other things when you're not in a conference." ■

SENDING CORPORATE NETWORK TRAFFIC over Category 5 Ethernet cable at 1G bit/sec. — which is now possible via LANs — may sound fast. But that's snail-like compared with what's possible over backbone networks using optical data transmission that can accommodate 80 different data streams, each running at 2.5G bit/sec. New optical networking technologies, especially those involving switching and multiplexing running on backbones, promise to eliminate bandwidth bottlenecks between corporate networks.

Big networking names such as Cisco Systems Inc. in San Jose, Calif., Lucent Technologies Inc. in Murray Hill, N.J., and Nortel Networks Corp. in Brampton, Ontario, see opportunities aplenty. They've made optical development a priority, as have companies focusing only on the optical market such as Sycamore Networks Inc. in Chelmsford, Mass., and Ciena Corp. in Linthicum, Md.

For corporate users, optical networks could mean more robust connections to public and private backbones and faster connections between buildings, across metropolitan areas and to data centers maintained by network outsourceers.

With site-to-site optical switching over fiber-optic cable, remote servers can respond as quickly as if they were local.

Laser Ride

Data sent over fiber rides on a laser. And unlike the beam from a flashlight that dissipates into the night sky, a laser concentrates light so it can streak through the fiber for 500 kilometers or more before it has to be amplified or



ALL-OPTICAL SWITCHES employ tiny moving mirrors to shine light waves from one fiber to another

regenerated. Convert a digital electrical signal to laser pulses, and optical becomes an extraordinarily fast and high-volume way to transmit data.

Optical networks are already in place inside many large corporations. Here, fiber is often used in backbones that serve LANs. The prospect of all-optical connections from the wiring closet to the Internet backbone has network folks sensing major change.

Think about it: a seamless optical connection that bursts text, voice and video at 186,000 miles per second across cities or countries. Mouse-click in Boston, and a server in Seattle responds without a wait. That's already prompting outsourceers to use fiber to link scattered offices.

Optical transport for long-haul telecommunications isn't new, either. As early as the 1980s, telecommunications companies were combining multiple voice signals on a single fiber-optic cable by sending different signals over the line at very precise intervals. The technique is called time division multiplexing.

And through an optical carrier standard called the Synchronous Optical Network, or Sonet, companies were able to achieve speeds of 2.5G bit/sec. over optical fiber, according to Kathy Szilag, vice president of the business optical group at Lucent. That, she says, is equivalent to 33,000 simultaneous phone calls per fiber and was just fine up until about 1995, when the Internet began gobbling bandwidth.

One solution has been to bury more

fiber-optic cable. But that often means digging trenches, which can be expensive, especially in urban areas. Now there's another option, at least where there's already fiber in the ground: Dense wavelength division multiplexing, in use since the mid-1990s, combines different wavelengths of light, each carrying a different data stream, into a single beam that's sent over a single fiber.

Szilag explains: "You take several lasers running at 2.5G bit/sec., each running at a slightly different color, a slightly different wavelength. They're closely spaced in terms of frequency. You feed these different colors into a prism. The prism combines the waves into a single beam. At the other end of the fiber, there's another prism, which separates the single beam back into the original colors."

Carriers can now send up to 80 separate wavelengths over a given fiber, Szilag says. That equates to 2.6 million simultaneous phone calls. And consider this: More than 150 fibers can be bundled in a single fiber-optic cable.

Traffic Cops for Light

Still, telling information-laden light waves where to go and how to get there has been a challenge. Until recently, it was necessary to convert optical signals to electrical signals and back again before network traffic could be switched (from one circuit to another) or routed (directed) to the appropriate destination based on the addressing information carried by the signal.

The complexity of the current hy-

LET THERE

Growth in optical switching and dense wave eliminate some of the bottlenecks between

Flair to the Front Door

Quality optical network connections have a cost advantage over electrical connections, but the technology is still in its infancy. In the meantime, network engineers are looking for ways to make the most of the technology they have. One way is to use optical connections for the most critical parts of the network, such as the backbone, and use electrical connections for the rest. This is the approach taken by Lucent Technologies, which is looking for ways to make the most of the technology they have. One way is to use optical connections for the most critical parts of the network, such as the backbone, and use electrical connections for the rest. This is the approach taken by Lucent Technologies, which is looking for ways to make the most of the technology they have.

Under the Business Light

Before there was fiber-optic cable, there was, there and there are, purchasing around light. But that's already gone. Now it's all about the light. They're looking up the star and shining Global Ethernet

connections with fiber-optic connections to connect them to the rest of the network. In the meantime, network engineers are looking for ways to make the most of the technology they have. One way is to use optical connections for the most critical parts of the network, such as the backbone, and use electrical connections for the rest. This is the approach taken by Lucent Technologies, which is looking for ways to make the most of the technology they have.

Connections such as the Palo Alto Medical Center's Palo Alto, Calif., connection to a network that's both optical and electrical to connect standard business systems and the network management system. The hospital has signed on with Vnet.

Shedding on Ethernet, from the fiber to the Ethernet, through the corporate network and all the way to individual desktops, makes building a WAN between buildings and campuses a lot easier to do.

From the CO, the Ethernet says its organization will use the bandwidth to send compressed image data, from one facility to another. Then it can add bandwidth as needed in 500 kbps increments, up to 100 mb/sec. Hightower says, which means the medical group pays only for the bandwidth it uses.

—James Cope

brid optical/electrical digital cross-connect systems that control traffic on most of the large public and long-haul private networks makes maintenance and change costly and slow.

Reconfiguring incoming and outgoing traffic at a major carrier cross-connect can take weeks or even months, says Mike Coghill, head of network engineering at Global Crossing Ltd., a broadband information provider and data center outsource.

Global Crossing will be the first to deploy an all-optical switch, Lucent's WaveStar LambdaRouter. Announced

in November, the LambdaRouter performs many of the functions of a digital cross-connect, but it does so optically — there's no optical-to-electrical and back-to-optical conversion.

Nortel is also in the all-optical switching game. It's purchasing Xros Inc. in Sunnyvale, Calif., to get the Xros X-1000 cross-connect, which is still in the works. Like Lucent's technology, it's an all-optical switch that analysts say may go into trial later this year.

Both Lucent and Nortel use a micro-mirror technology. Tiny mirrors, one

for each wavelength, catch the wavelengths and then reflect (switch) them to the appropriate fiber, based on the settings programmed into the switch.

For example, an incoming wavelength destined for the Southeast that's coming into an optical switch in Chicago could be sent to Atlanta by "shining" the signal to the appropriate output fiber.

Coghill says Hamilton, Bermuda-based Global Crossing is testing three Lucent optical switches and plans to begin deploying them later this year. Neither Lucent nor Nortel has been

forthcoming about prices for the new switches. But Coghill suggests that a single Lucent switch will run somewhere between \$3 million and \$5 million, depending on how many in-and-out ports the switch accommodates.

Lucent's current product can switch 256 incoming by 256 outgoing wavelengths. Lucent says the switch will eventually scale to 1,024 by 1,024 wavelengths. The Xros switch, according to Nortel, will be 1,152 by 1,152 wavelengths.

Why are Coghill and others so fixated on these developments?

More for Less

"The core [of the network] today is electrical," Coghill says. "You have to convert optical signals to electrical signals before you can do any switching." And with the Internet's requirements for "bandwidth doubling every four to six months, conventional [switching involving electrical to optical conversion] simply cannot be scaled fast enough," he adds.

"The goal," says Coghill, "is to replicate everything in electrical to optical."

And while few are willing to predict when — or whether — there will be an all-optical equivalent to the sophisticated content routing now possible through electrical routers, Coghill says he believes that in the next couple of years optical networking will drive down cost and increase throughput.

"In the optical domain," he says, "throughput-per-bit for an optical device is halving every six to nine months. Put another way: You're getting twice the throughput for the same price." ■

BE [NETWORK] LIGHT

Wavelength division multiplexing promises to open corporate networks. By James Cope

Fiber to the Front Door

Too often today, network connections from a company's LAN to another site or to the Internet run over a copper T1 line at 1.54 mb/sec. That can create a bandwidth bottleneck. Chris Nicol, an analyst at Current Analysis Inc. in Sterling, Va., says direct optical connections from company networks to a metropolitan fiber network and the Internet make the problem go away.

Two new companies, **Vtype Communications Inc.** in San Francisco and **Telecom Inc.** in Palo Alto, Calif., see the bottleneck as a marketing opportunity. Both aim at wiring optical fiber from the Internet backbone to the corporate front door. Telecom will focus on providing fiber connectivity to service providers, which in turn can market the high-speed connection to corporate customers. Vtype plans to sell directly to corporations.

Make the Darkest Light

Rather than string fiber-optic cable themselves, Vtype and Telecom are purchasing unused (dark) fiber that already runs beneath city streets. They're lighting up the fiber and offering Digital Ethernet

connections to it. That allows companies in nearby buildings to link optically with LANs at their other facilities within the same metropolitan area, says Karman Sattarzadeh, vice president of network architecture at Vtype. It also provides a direct optical link to access points on the Internet backbone.

For companies such as the **Palo Alto Medical Foundation** in Palo Alto, Calif., connecting to a network that's both optical and conforms to Ethernet standards increases speed and makes network management easier. The foundation has signed on with Vtype.

Standardizing on Ethernet, from the fiber under the street, through the corporate servers and all the way to individual desktops, makes building a WAN between buildings and campuses a plug-and-play proposition.

Foundation ODP Holdings says its organization will use the bandwidth to send computerized tomography scans from one facility to another. Then it can add bandwidth as needed in 1M b/sec. increments, up to 10 b/sec., Holdings says, which means the medical group pays only for the bandwidth it uses.

—James Cope

forthcoming about prices for the new switches. But Coghill suggests that a single Lucent switch will run somewhere between \$3 million and \$5 million, depending on how many in-and-out ports the switch accommodates.

Lucent's current product can switch 256 incoming by 256 outgoing wavelengths. Lucent says the switch will eventually scale to 1,024 by 1,024 wavelengths. The Xros switch, according to Nortel, will be 1,152 by 1,152 wavelengths.

Why are Coghill and others so fixated on these developments?

More for Less

"The core [of the network] today is electrical," Coghill says. "You have to convert optical signals to electrical signals before you can do any switching." And with the Internet's requirements for "bandwidth doubling every four to six months, conventional [switching involving electrical to optical conversion] simply cannot be scaled fast enough," he adds.

"The goal," says Coghill, "is to replicate everything in electrical to optical."

And while few are willing to predict when — or whether — there will be an all-optical equivalent to the sophisticated content routing now possible through electrical routers, Coghill says he believes that in the next couple of years optical networking will drive down cost and increase throughput.

"In the optical domain," he says, "throughput-per-bit for an optical device is halving every six to nine months. Put another way: You're getting twice the throughput for the same price." ■

brid optical/electrical digital cross-connect systems that control traffic on most of the large public and long-haul private networks makes maintenance and change costly and slow.

Reconfiguring incoming and outgoing traffic at a major carrier cross-connect can take weeks or even months, says Mike Coghill, head of network engineering at Global Crossing Ltd., a broadband information provider and data center outsourcer.

Global Crossing will be the first to deploy an all-optical switch, Lucent's WaveStar LambdaRouter. Announced

in November, the LambdaRouter performs many of the functions of a digital cross-connect, but it does so optically — there's no optical-to-electrical-and-back-to-optical conversion.

Nortel is also in the all-optical switching game. It's purchasing Xros Inc. in Sunnyvale, Calif., to get the Xros X-1000 cross-connect, which is still in the works. Like Lucent's technology, it's an all-optical switch that analysts say may go into trial later this year.

Both Lucent and Nortel use a micro-mirror technology. Tiny mirrors, one

for each wavelength, catch the wavelengths and then reflect (switch) them to the appropriate fiber, based on the settings programmed into the switch.

For example, an incoming wavelength destined for the Southeast that's coming into an optical switch in Chicago could be sent to Atlanta by "shining" the signal to the appropriate out-bound fiber.

Coghill says Hamilton, Bermuda-based Global Crossing is testing three Lucent optical switches and plans to begin deploying them later this year. Neither Lucent nor Nortel has been

BE LIGHT

avelength division multiplexing promises to open corporate networks. By James Cope

SINCE 1992, WHEN IT'S COUNTRIES signed the Rio Accords on environmental issues, nations around the world, including Malaysia, have begun measuring and monitoring air quality. They use sophisticated gas-analyzing devices, sometimes placed in isolated sites spread out over great distances and linked by computer networks.

Advanced Pollution Instrumentation Inc. (API) in San Diego, which designs, builds and installs pollution analysis systems throughout the world, says the ability to access this equipment remotely saves customers hundreds of thousands of dollars annually.

In order to reliably monitor its network equipment remotely, API has outfitted each of its air-analyzing devices with an RS232C-connected modem, as well as a serial code-activated switch (S-CAS) — also called a serial code-operated switch (S-COS) — between modems at the network routers, according to Mark Cogan, API's international sales manager. The switches are manufactured by Reliable Communications Inc. in Angels Camp, Calif.

"In 1992, most of the countries on the planet, except for the United States, got together at a conference in Rio de Janeiro and promised that they would all respect the environment," says Cogan. "And they promised to monitor the air quality by using standard techniques."

The government of Malaysia in 1995 hired Alan Sekitar Malaysia Sdn. Bhd. (ASMA), an environmental information and services company in Malaysia, to collect and disseminate air-quality data. ASMA then turned to API to set up a network to monitor the air quality throughout Malaysia — approximately 127,000 square miles.

Cogan says the measurements taken at monitoring stations, which consist of a number of air-analyzing instruments, are used to develop an air-quality index, or model, for the country.

Because a great deal of Malaysia is covered with jungle and is remote from cities, network administrators

Switching to Cleaner Air

Remote access to monitoring equipment can help companies save money — and the environment.
By Linda Rosencrance

must routinely communicate with sensors at individual monitoring stations. The administrators diagnose the operating conditions of the stations, download data and perform other remote operations and analyses.

"The S-CAS, or S-COS, code-activated switch allows people sitting in Kuala Lumpur, sometimes over 1,000 kilometers (621 miles) from a monitoring station, to be able to address individual monitors within each Malaysian monitoring station and perform routine maintenance without ever having to go into the field," Cogan says.

Jasni Bakhtar, ASMA's information technology manager, says the switches save time and money.

"Our technicians can make a diagno-

sis remotely [with the switches] and then [know exactly] what spare parts to bring to the monitoring station with them," Bakhtar says. "They save time [and therefore money] because they don't have to go into the field twice."

Bakhtar says the government of Malaysia recently purchased the monitoring stations from API. Although ASMA has technicians who handle any problems that might crop up, the company also has a contract with API for technical support.

Cogan says the serial code-activated switch works whether the network is up or down.

"As long as the administrator can establish some telemetry to a modem at the monitoring station, you can oper-

ate all the equipment transparently," Cogan says.

In many places throughout Malaysia and the rest of the world, it's easier to connect the telephone system via a cellular phone and modem than via land-line connections, Cogan says.

The network system looks much like a LAN, Cogan says. It's made up of servers, workstations, a network operating system and a communications link. The network system uses central network software, with the modems serving as the connection points.

David Ellison, customer relations manager at Reliable Communications, says companies can monitor and maintain their networks from anywhere in the world by using the company's code-operated switch.

Ellison offers an example of how the monitoring works: "It's 2:30 a.m. and the network is down in Missouri, so a technician in Wisconsin immediately gets on his computer and remotely scans all console ports to identify the offending device, corrects the problem, and the network is back online. The company saves thousands," he says.

Cogan says remote network support saves money because technicians no longer have to go into the field to address routine maintenance.

In Malaysia, where there's a 50-station network, the savings are huge, Cogan says.

"The spend-to-save ratio is staggering," he says. "It costs about \$3.5 million to build a 10-station network. And the savings is about \$1 million in field labor [per 10-station network] per year."

According to Cogan, network systems with remote network support like the one in Malaysia are becoming increasingly popular as countries develop economically.

"Generally, environmental concerns and actions take place in growth markets," Cogan says. "Where people have taken care of food, clothing and shelter, they begin to turn to legacy issues like water and air quality. But we also see these concerns in areas that experience severe problems, such as New Delhi and Mexico City." ■

Air-Quality Monitoring

Using Reliable's code-activated switch, the Malaysian government employs the latest technology to track pollution in that country.

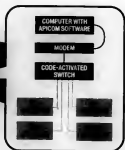


The connection from the office to the remote monitoring station is made via a cellular phone and a modem.

The code-activated switch allows people sitting in Kuala Lumpur to perform routine maintenance on monitoring stations in the Malaysian jungle more than 600 miles away.



Fifty sophisticated gas-analyzing devices, linked by computer networks, monitor and measure the air quality.



SINCE 1992, WHEN 135 COUNTRIES signed the Rio Accords on environmental issues, nations around the world, including Malaysia, have begun measuring and monitoring air quality. They use sophisticated gas-analyzing devices, sometimes placed in isolated sites spread out over great distances and linked by computer networks.

Advanced Pollution Instrumentation Inc. (API) in San Diego, which designs, builds and installs pollution analysis systems throughout the world, says the ability to access this equipment remotely saves customers hundreds of thousands of dollars annually.

In order to reliably monitor its network equipment remotely, API has outfitted each of its air-analyzing devices with an RS323-connected modem, as well as a serial code-activated switch (S-CAS)—also called a serial code-operated switch (S-COS)—between modems at the network routers, according to Mark Cogan, API's international sales manager. The switches are manufactured by Reliable Communications Inc. in Angels Camp, Calif.

"In 1992, most of the countries on the planet, except for the United States, got together at a conference in Rio de Janeiro and promised that they would all respect the environment," says Cogan. "And they promised to monitor the air quality by using standard techniques."

The government of Malaysia in 1995 hired Alan Schikar Malaysia Sdn. Bhd. (ASMA), an environmental information and services company in Malaysia, to collect and disseminate air-quality data. ASMA then turned to API to set up a network to monitor the air quality throughout Malaysia—approximately 172,000 square miles.

Cogan says the measurements taken at monitoring stations, which consist of a number of air-analyzing instruments, are used to develop an air-quality index, or model, for the country.

Because a great deal of Malaysia is covered with jungle and is remote from cities, network administrators

Switching to Cleaner Air

Remote access to monitoring equipment can help companies save money — and the environment.
By Linda Rosencrance

must routinely communicate with sensors at individual monitoring stations. The administrators diagnose the operating conditions of the stations, download data and perform other remote operations and analyses.

"The S-CAS, or S-COS, code-[activated] switch allows people sitting in Kuala Lumpur, sometimes over 1,000 kilometers (621 miles) from a monitoring station, to be able to address individual monitors within each Malaysian monitoring station and perform routine maintenance without ever having to go into the field," Cogan says.

Jasni Bakhtar, ASMA's information technology manager, says the switches save time and money.

"Our technicians can make a diagno-

sis remotely [with the switches] and then [know exactly] what spare parts to bring to the monitoring station with them," Bakhtar says. "They save time [and therefore money], because they don't have to go into the field twice."

Bakhtar says the government of Malaysia recently purchased the monitoring stations from API. Although ASMA has technicians who handle any problems that might crop up, the company also has a contract with API for technical support.

Cogan says the serial code-activated switch works whether the network is up or down.

"As long as the administrator can establish some telemetry to a modem at the monitoring station, you can oper-

ate all the equipment transparently," Cogan says.

In many places throughout Malaysia and the rest of the world, it's easier to connect the telephone system via a cellular phone and modem than via land-line connections, Cogan says.

The network system looks much like a LAN, Cogan says. It's made up of servers, workstations, a network operating system and a communications link. The network system uses central network software, with the modems serving as the connection points.

David Ellison, customer relations manager at Reliable Communications, says companies can monitor and maintain their networks from anywhere in the world by using the company's code-operated switch.

Ellison offers an example of how the monitoring works: "It's 2:30 a.m. and the network is down in Missouri, so a technician in Wisconsin immediately gets on his computer and remotely scans all console ports to identify the offending device, corrects the problem, and the network is back online. The company saves thousands," he says.

Cogan says remote network support saves money because technicians no longer have to go into the field to address routine maintenance.

In Malaysia, where there's a 50-station network, the savings are huge, Cogan says.

"The spend-to-save ratio is staggering," he says. "It costs about \$3.5 million to build a 10-station network. And the savings is about \$1 million in field labor [per 10-station network] per year."

According to Cogan, network systems with remote network support like the one in Malaysia are becoming increasingly popular as countries develop economically.

"Generally, environmental concerns and actions take place in growth markets," Cogan says. "When people have taken care of food, clothing and shelter, they begin to turn to legacy issues like water and air quality. But we also see these concerns in areas that experience severe problems, such as New Delhi and Mexico City." ■

Air-Quality Monitoring

Using Reliable's code-activated switch, the Malaysian government employs the latest technology to track pollution in that country.

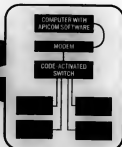


The connection from the office to the remote monitoring station is made via a cellular phone and a modem.

The code-activated switch allows people sitting in Kuala Lumpur to perform routine maintenance on monitoring stations in the Malaysian jungle more than 600 miles away.



Fifty sophisticated gas-analyzing devices, linked by computer networks, monitor and measure the air quality.



What could you do with
the services to change everything?

Qwest® Q Port: No limit networking. Can you imagine a network that delivers the bandwidth you need without it costing you a fortune. Qwest Q Port can make it happen. Because only Q Port gives you Frame Relay and a simple migration path to IP for one flat monthly fee. Which means you can bank on bandwidth without blowing your budget.

To find out more about Q Port, visit www.qwest.com or call **1 800 RIDE QWEST** (1-800-743-3793). Because from today, there will be no limits.



Timing Is Everything To Industry Veteran

Firm launches start-up Datum EBS to make its mark in the time-stamping space

BY STEVE ULFELDER

AS MORE critical business documents are transmitted via the Internet, a weakness grows increasingly glaring: There's no secure, agreed-upon way to tell exactly when a message was sent or received.

Datum eBusiness Solutions (EBS) wants to bring the business world an electronic postmark: a secure, auditable time stamp. The need for such tools is clear — but the field is crowded, and it's fair to guess that if you wait, time-stamp tools will fall in both price and complexity.

Based in Irvine, Calif., corporate parent Datum Inc., a 30-year-old leader in the precision-timing industry, last July bought Lexington, Mass.-based Digital Delivery Inc. and spun off Datum EBS. Based in Lexington, Datum EBS is run like an independent start-up. Digital Delivery founder Mark Hastings is president of the new division.

The Need

"Let's say my firm has got this \$600 million order," Hastings says, drawing on a real-life example from a manufacturer. The order is with a just-in-time supplier and must be placed by 5 p.m. or the manufacturer pays a stiff penalty.

"My Internet clock's been drifting back, which is to my advantage. I say [to the supplier], 'Hey, I placed this order at 4:55.' They say no — their clock has it at 5:05. What's your time is right?" says Hastings.

There's no solid way to settle such a dispute at present.

"All computer [clocks] are off by different amounts," Hastings says. "They can be pushed off by any number of incidents. Even a server in a small organization may drift three minutes per day. Big outfits may see a bigger drift."

Hastings cites another ex-

ample from an unnamed food-processing company. The company has 32,000 hourly employees and it's ready to move to electronic time cards.

In the company's state, "people get paid overtime if they work seven minutes past" the hour, Hastings says. The food processor is "very concerned" about workers challenging the validity of the company clock.

Dennis Steerszen, an analyst at Hurwitz Group Inc. in

Boston, says electronic time-stamping is "especially critical with electronic trading. The value of money itself shifts within a matter of seconds."

The Process

Hence, the need for tools like Datum EBS's Trusted Time product. Here's how it works:

Start at the very top with Coordinated Universal Time (UTC), the international time standard. Nations that keep atomic clocks nudge them a few nanoseconds either way at the command of UTC's keepers, the International Bureau

of Weights and Measures.

Any nation that participates in UTC has a national authority that's an official timekeeper. If a country can't manage to keep its clock within 100 nanoseconds of UTC, it gets booted from the consortium. In the U.S., the National Institute of Standards and Technology (NIST) in Gaithersburg, Md., plays the role.

Datum EBS's goal is to create a secure, auditable relationship that starts with NIST and flows all the way through to users' desktops. This means the company is in the server business.

"To do time, you need hardware," Hastings says. Datum EBS will sell a variety of configurations keyed by what it calls a Trusted Master Clock — a specialized server with a super-accurate clock (certified to 100 milliseconds) that acts as the liaison between UTC and another Datum EBS component: a time-stamp server. Trusted Time uses secure Internet connections for all transactions.

Along the way, every data exchange is cryptographically signed and logged. Trusted Time integrates public-key infrastructure cryptographic technology to authenticate every element of the delivery of a time stamp. While the addition of time stamps to security algorithms is far from new, Datum EBS says little work has been done to validate the source and transmission of those stamps.

So when your company's purchasing department says it logged an order at 12:59 p.m., and a supplier insists it was 12:01 a.m., you can trace your claim all the way back to the world's definitive timekeeping authority.

The Horrors

Datum EBS is facing some formidable competition. TimeCertain LLC in Washington, Reston, Va.-based Surety.com and San Jose-based Certified-Time Inc. all offer similar products. Steerszen says Datum EBS's strength is its parent company's backing. "Others have the same concept," he says, "but Datum brings its heritage and history to the table. And trust is what it's all about."

Ulfelder is a freelance writer in Southbury, Conn. Contact him at ulfelder@earthlink.net.

the buzz
STATE OF
THE MARKET

It's About Time

Datum EBS President Mark Hastings is a time geek. He talks about clocks the way some guys talk about hot rods. Pop the hood on his company's Trusted Master Clock. Get your Rubidium oscillator. Not sick enough? OK, make it a Cesium oscillator (external, of course). Get your Global Positioning Satellite receiver card. Get your timing engine. The works.

Hastings knows that for information technology, nanoseconds aren't the most important thing. "The issue is not pure accuracy," he says. "The issue is [getting] a time stamp from a source [that] you can trust."

Nevertheless, you can hear his disgust when he talks about peddling off-the-shelf clocks. "In Unix, you can only get down to microseconds," he sneers. "It's very easy to fool with a Unix clock."

These days, a time geek is valuable. Consider the latest salvo in the time-is-money wars: In Germany, securities traders are demanding that their transactions be completed in eight seconds maximum. Otherwise, they want the orders killed. Achtung, baby.

CertifiedTime Inc.

San Jose
www.certifiedtime.com
Perhaps Datum EBS's most direct competitor, CertifiedTime lets IT synchronize desktops and transaction servers via private leased-line connections with its regional timing centers.

Surety.com Inc.

Reston, Va.
www.surety.com
Its Digital Notary Service lets you notarize electronic files and records before you distribute them. Surety.com's built-in time stamp is highly rated by experts, and the company has partnerships with Lotus Development Corp. and others.

TimeCertain LLC

Washington
www.timecertain.com
Its product, also called TimeCertain, wraps in a protective seal the content, author identification and time of creation of any digital document. Then it attaches a server-evident certificate to the document.

Got the Time?

If you suspect your watch is a few nanoseconds slow, check NIST's time page. From an atomic clock to your Times: www.time.gov.

—Steve Ulfelder



DATUM EBS PRESIDENT MARK HASTINGS aims to provide a secure, auditable way to trace a transaction over time

Datum eBusiness Solutions

Address: 10 Maguire Road,
S 120, Lexington, Mass. 02421

Phone: (781) 372-3600

Web: www.datum.com

The technology: Secure, auditable time stamps for documents transmitted via the Internet

Why it's worth watching: Business executives assume it has a bullet-proof plan for time-stamping Internet-transmitted documents. If you don't, and there's a dispute with a supplier, your head may roll.

Company officers:
• Mark Hastings, co-founder and president

• Erik van der Kuy, co-founder and CEO
• Dave Young, vice president and chief financial officer

Number of employees: 30

Founded: August 1999

Burn money: Datum EBS is a wholly owned strategic business unit of Datum Inc., a public company.

Red flags for IT:

• Datum EBS is unproven, while competitors have track records.
• Sooner or later, it seems, someone will offer a simpler solution to the same problem.

COMPUTERWORLD
highlighting
emerging
companies

For more information on advertising,
call (800) 343-6474 Ext. 4000

Problem is, your timing's off, Sweetie.

With synchronization every second counts.

If your company is considering e-commerce, e-procurement or 24/7 status, network server synchronization is essential. Turn to Datum TymServe, a single, unbiased time reference for accurate global synchronization. Without it, you may find your time has run out.

- Plug and play. Rack-mountable units install while your server is running - unlike others.
- Redundant sources. Use Global Positioning System, Inter-Range Instrumentation Group, time code or dial-up for time sources.
- Low maintenance. Unsurpassed reliability leaves you free to focus on other issues.
- Secure source. Network Time Protocol traffic stays inside the firewall - unlike internet time sources.

> www.datum.com/tscw2 > 888 551-4022



datum
Business Solutions

MARKETPLACE

For more information on advertising,
call (800) 343-6474 Ext. 4000

COMPUTERWORLD May 22, 2000



Cyber-U.S. Inc.

Software Engineering

Providers of custom software development, system integration, analysis and Y2K compliance for the PC, mid-range and large scale systems markets.

Four reasons to choose Cyber-US for your custom software development and programming needs:

- Expertise in a wide range of programming languages, operation systems and platforms
- Experience in a variety of industry segments and application fields such as transportation, banking, real estate, communications, geology, geographic information systems, and decision support
- High quality consulting services
- Very competitive rates

Call today for your FREE consultation. We will be happy to respond with our suggestions on how we might help your company with its Information Technology and programming needs.

Cyber-U.S., Inc.
703-299-0804
www.cyber-us.com



WE BUY USED COMPUTER EQUIPMENT



PACE/BUTLER CORPORATION

800-319-9355

Fax: 405-755-1114
<http://www.pace-butler.com>

13900 N. Harvey Ave.
Edmond, OK 73013-2431

FAST • FAIR • FRIENDLY • Since 1987

from web servers to mainframes

www.alicomp.com

"Amazingly efficient"

*Ingenious & Efficient
You guys are very
efficient! I need
all your power!*

We know how valuable your time is. That's why we've made it easier than ever to keep up to speed on the latest and greatest IT offerings.

Join a world renowned eSource
that keeps you up to date on the latest
and greatest IT offerings.

Not currently receiving eSource?

Register at <http://computerworld.com/esource/register>

COMPUTERWORLD eSource

The Top Skills to Watch

Five front-line recruiters talk about the hottest skills and careers for up-and-coming IT pros who want to stay with the program.

By Mary Brandel

YOU WANT to spark up your career—but with the ever-changing information technology market, it's hard to focus on an area that will still be in demand by the time you've finished the training course.

So we went to the front lines of the IT hiring field and asked several recruiters what they see as the hottest skills in the months—and possibly years—ahead. Here's what they said.

GAME WEB ANYTHING

Cori Katzmoder
President
Tiburon Group Inc.
Chicago

What is "the" skill? We [need] people with Java, JavaScript programming, JavaBeans, XML programming, Active Server Pages knowledge—anything Web-development-related. Still hot is business process re-engineering. With all the companies moving to e-business platforms, we need people who can step back and look at what works from the process perspective and make the Web transaction move throughout the business.

What is the demand for IT? Ten times what's out there. People are naming their own salaries.

Which companies have the highest demand? Most traditional industries are figuring out how to make their Web sites profitable, so established companies are moving their business models to the Web. Some are operating

them as part of the larger company, and others are spinning them off as pre-IPO companies and are [using] stock options to compete with the start-ups.

What salary can candidates expect? It's from \$85,000 on the low end, if you've got a year of experience, to \$150,000 on the high end, for two or more years.

What type of person gets hired?

We look for someone with an overall background—maybe five years or more—in client/server who has moved to the Web. If a year of experience was e-business-oriented, then they can capitalize on that and take top dollar. If they have presentation skills and better people skills, they'll get a position quicker.

JAVA STILL STEAMING

Larry Johnson
Technical recruiter
Baldwin Forrester & Co.
San Francisco

What is "the" skill? The hottest thing out there now is Java applications, because so many businesses are setting up business-to-business applications and there are all kinds of e-commerce companies that want to have the latest and greatest for their sites. If somebody has a background in Visual Basic or C++, Java is the thing to learn.

What types of companies have the highest demand? For Java, it's mostly e-commerce companies and companies developing portals and business-to-business applications. For Netscape's

Enterprise Server, it's mostly start-ups that want smaller, more streamlined equipment to set up their operations.

What salary can candidates expect? Java programmers working on a contract basis can ask \$100 per hour and up.

A WIRELESS WORLD

Ben Sabrin
Senior Java search consultant
Percom Systems Inc.
Atlanta

What is "the" skill? The thing that is really going to continue to gain speed is stuff in the wireless arena and wireless applications, both for [personal digital assistants] and cellular phones, like Wireless Application Protocol and enablers for [it]. The driving force behind a lot of this is Java 2 Micro Edition. Another is Transmeta Corp.'s Crusoe chip, which targets wireless devices running at 400 MHz. And another is [its] connection technology from Sun Microsystems, which allows any digital device to communicate with other digital devices, no matter what operating system it uses, without cables or connectors.

Why is it needed? Global markets don't have as sophisticated [telecommunications] infrastructure as the U.S. does, and wireless is cheaper than landlines, so a lot of countries are going for wireless. We'll see the next big boom in Internet-related stuff targeting Latin America.

What types of companies have the highest demand? A lot of content providers and major portals. They're taking the content they deliver to the Internet and to wireless devices and optimizing it for that medium.

A lot of the new PDAs have infrared devices, so they could be used as portable scanners. You could do inventory with the PDA, slap it on a cradle and link up to the main system. There are lots of companies focused on the applications side right now—anyone with a large sales staff is evaluating PDAs for things like

dynamic pricing applications.

What salary can candidates expect? Senior folks are making \$100,000 to \$120,000, depending on where in the country they're working. Good software engineers are making \$60,000 to \$90,000.

What type of person gets hired?

The people who will do really well, especially if the company is in its infancy, are dreamers—people who can think of different ways that technology can make day-to-day life better and package that technology in this little handheld device. The technology is there; it's just a matter of dreaming of how to make it work.

GRAPHIC DESIGNERS RULE

Tracey Claybrook
Founder
Claybrook & Associates Inc.
Tampa, Fla.

What is "the" skill? What I see that will be in hot demand are creative directors doing the interactive computer graphic arts on the Web.

Why is it needed? I'm looking at all these interactive firms, and with the Web and e-commerce industries growing, they're people are designing the whole front-end interface.

What types of companies have

the highest demand? Anybody in the e-commerce world who has to make their site stimulating.

What types of people get hired? They're technical but have their bachelor's in fine arts and know about computer animation and the visual design elements that go into interactive technologies.

What's the demand for IT? It's growing. I have two clients who do interactive work, but as I work with companies selling front-end and back-end solutions, I get the sense that all of a sudden, these creative folks who work on the Web are going to be in high demand.

What salary can candidates expect? Eighty thousand dollars per year and up.

HEALTHY OPPORTUNITIES

Rob Mhoon
President
The Mana Group Inc.
Arlington, Texas

What is "the" skill? The demand for health care technologists is heating up. There is lots of opportunity for individuals with experience in application packages such as those by Shared Medical Systems, [Software Technologies Corp.] DataGate and the systems by McKesson HBC.

Why is it needed? It's driven by the need to cut costs while complying with myriad government regulations.

What types of companies have the highest demand? It's across the board with medical right now. You've got the managed-care systems trying to cut costs to stay alive and traditional medical centers and hospitals under the gun to cut costs. The difficulty lies in finding the people who will relocate to another geographic area. A lot of the spots in the hinterland are unfilled.

What type of person gets hired? Obviously, there's a preference for someone with experience in medical applications, but it depends on the level of position you're trying to fill. ■

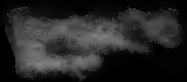
Brandel is a freelance writer in Newton, Mass.



Computerworld • May 22, 2000

You've revolutionized everything else

What's left
but high finance?



It's your chance to take on the next great IT challenge. Right at the place where global finance and cutting edge technology meet. Morgan Stanley Dean Witter. We've got the resources, the rewards and the environment (fast paced, stimulating, plus business casual) to make it right for you. We need the great minds and innovators to get it right for us. Ready? Contact us now at itcareer@msdw.com.

MORGAN STANLEY DEAN WITTER
INFORMATION TECHNOLOGY

Morgan Stanley Dean Witter is an Equal Opportunity Employer committed to workforce diversity.

Imagine an IT job
with overtime pay,
a flexible schedule and
a boss who listens.

Or go to
dice.com and
actually find one.



170,000 high tech jobs, including your next one.

AN ENTHUSIASTIC VOICE

m
marchFIRST

marchFIRST is the first Internet professional services company to offer the business world every proven resource it needs to revolutionize — not just change. Our client collaborations become organization-wide movements that produce the business models, brands, and systems and processes needed to compete and win in the new economy.

AS/400 DBOL
AS/400 RPG
BAAN
BPCS
Client/Server
New Media
Dynamics
DCM
Oracle
PeopleSoft
Progress

LAN/WAN
Management
Lotus Notes
Manufacturing
Network Engineering
SYNCH
Technical Writing
Training
UNIX
Web Development
Year 2000

Retail Consulting
SAP
Software Testing & QA
Strategic Consulting
Desktop
EDI
Electronic Commerce
IT Architecture
Instructional Design
JD Edwards

If you fit any of these profiles, we would like to have the opportunity to introduce you to marchFIRST. Please refer to the Careers section of our web site at www.marchFIRST.com and apply on-line. Or send your resume directly to careers@marchFIRST.com Fax: 312-913-6677 Mail: 311 S. Wacker Dr., Suite 3500, Chicago, IL, 60606 • EOE M/F/D/V

marchFIRST

www.marchFIRST.com

THE WORLD'S
BEST IT TOOL IS
IN YOUR HANDS

THE WORLD'S
BEST IT
TALENT IS AT
OUR SITE

What if you expect more from one and only career resource for readers of Computerworld, InfoWorld and Network World?

Come on, recruit our readers and you'll recruit less often

careers

1-JOBS.com
PRESENTS

MINNEAPOLIS
HIGH TECH
CAREER
FAIR

June 7 & 8
Minneapolis
Convention Center,
1301 Second Avenue South,
Minneapolis, MN 10am - 5pm

Meet face-to-face with recruiters and hiring managers from over **50** leading area high tech companies!

HUNDREDS
of opportunities!
Come and See What Your Skills
Are Worth!

Visit www.1Jobs.com for complete details

STRICTLY
HIGHER
Where
Information &
Technology
Becomes Modern.

• 1300 Booths! • See the Latest in Products & Services! • Learn From The Experts • The Largest Regional Computer Show

Exhibitor Space: \$12,000 - \$25,000

Call 1-800-555-1234 Fax 1-800-555-1234

S
O
L
U
T
I
O
N
S

OURS ISN'T A TYPICAL
FORMULA FOR SUCCESS.
IS YOURS?

Leading edge IT division. Diverse opportunities include:

- Project Managers
- System Consultants
- Programmer Analysts
- Business Analysts
- Oracle DBA's
- Unix Engineers
- Telecomm Analysts
- Technical Architects



Junus offers superior benefits, competitive salaries, an excellent work environment in Denver's Cherry Creek area, and is an equal opportunity employer. Candidates should submit resume and salary requirements in confidence.

Junus
100 Filmore Street Denver, CO 80206
Please e-mail resume to: AJC.junus@junus.com

For High Tech jobs go to www.dice.com

dice.com
High tech jobs online

careers



KAISER PERMANENTE.

Tomorrow: **a cure**
Today: **the IT infrastructure**
that it's founded on

What matters most? Your family, your work. Your health. Today, everywhere you look, technology is making the difference in all these areas. At Kaiser Permanente, we're dedicated to enhancing health care delivery through state of the art information tools. And the 3,500 experts at Kaiser Permanente IT are at the heart of that mission. Getting life saving information where it needs to go. Talk about mission critical, target Kaiser IT.

Bring your expertise to Kaiser Permanente today in one of the following disciplines. Become involved in exciting initiatives such as Web development, extranet, intranet, enterprise data security solutions, network planning, client/server-based projects, network infrastructure, project management and technology planning.

Position Locations:

**California, Colorado, Georgia, Hawaii, Maryland,
Ohio, Oregon, and Washington D.C.**

PC LAN

Seeking field technicians, administrators, desktop support specialists, LAN consultants and analysts with expertise in NT, Novell, TCP/IP, Lotus Notes, MS Exchange/Messaging, e-mail, LAN and WAN.

NETWORKING

Seeking administrators, consultants, WAN engineers, network design analysts and security consultants with expertise in UNIX*, Cisco hubs, routers, bridges, switches, Fast Ethernet, Token Ring, Frame Relay, ATM, AVR and Telephony.

TELECOMMUNICATIONS

Seeking analysts, consultants, software technical specialists and project managers with expertise in UNIX, Cisco hubs, routers, bridges, switches, voice, data, T1, CTI, ACD, PBX, Nortel Passport, ATM, Frame Relay and Call Center.

DATABASE ADMINISTRATION

Seeking professionals with experience in a large, complex multi-vendor database environment who possess skills in any of the following: Oracle, DB2, Sybase, IMS, physical database design, DBMS utilities in UNIX or MVS environments. O-O methods preferred.

DATA ANALYSIS

Seeking professionals with experience in logical database design, data modeling/Entity-Relationship diagramming, meta-data management and ERWin/Platinum; O-O methods preferred.

DATA WAREHOUSING

Seeking professionals with experience in Oracle, Essbase, Business Objects (Sequest a plus), data warehouse design and data transformation/extraction.

APPLICATIONS DEVELOPMENT

Seeking programmer analysts, systems programmers, systems analysts, application developers, group leads and operations specialists with expertise in PowerBuilder, C++, C, Visual Basic, Sybase, Oracle, UNIX, IEF/Composer, COOL-Gen, ADS Plus, MUMPS, SAS, EDI, MQ, ORDC, OCC, Corba, COBOL, COBOL II, JCL, MVS, DB2, CICS, Model 204, IMS, MANTIS, Pega Systems, Tandem, TAL, DEC/VAX/ VMS, PeopleSoft and Teracart.

**BUSINESS ANALYSIS/
PROJECT MANAGEMENT**

Seeking analysts, consultants and project managers to oversee projects utilizing MS Project with expertise in planning and implementation within an IT environment.

WEB DEVELOPMENT

Seeking senior Web developers to develop Web applications using Java*, application servers, and Oracle in a UNIX environment.

**SOFTWARE ENGINEERING/
SYSTEMS ARCHITECTURE**

Seeking expertise in emerging technologies for enterprise systems on an object-oriented or UNIX platform.

LOTUS NOTES

ADMINISTRATION/DEVELOPMENT

Seeking administrator with experience in large scale Notes infrastructure. Experience with R5, Domino 4.X or higher, hands-on administration expertise, troubleshooting, replication, mail routing, calendar and scheduling problems. Development candidates should possess strong Lotus Script and NT experience.

TECH WRITING/INSTRUCTIONAL DESIGN

Seeking experts in Adobe Illustrator*, Microsoft Office Suite, HTML and Visio.

UNIX SYSTEM ADMINISTRATORS

Seeking UNIX System Administrators with at least 3 years of system administration experience in AIX and/or Solaris*.

Find out more about Kaiser Permanente Information Technology by visiting www.kp.org/jobs; click on "IT Division" tab. Submit one resume only, referencing Job Code: PAD-CW0522, preferably by e-mail to: kpijobs@kp.org, or fax to: 1-800-839-5140. The tangible and intangible benefits of working for an organization of our size and scope will change your career perspective in a healthy way. Affirmative Action/Equal Opportunity Employer. All candidates belong to their respective companies.

www.kp.org/jobs

IT Careers in Financial Services

Millions of financial transactions sweep across the Internet every day, just as literally thousands of investments are traded on the stock exchange floors and multitudes of accounts are paid. In all of these instances, aggressive new information technologies - from architecture to database management to software applications - are providing the tools to keep the dollar bills moving.

Increasingly, companies involved with financial transactions are looking for two things: people with the ability to translate business needs into technology and people who push the envelope, looking for all new ways to make the process more efficient and credible.

Allstate Insurance Northbrook, IL

Policyholders look to Allstate to help them recover from major disaster or accident. At the heart of the ability to provide that insurance is an investment portfolio of \$70 billion. "The Investment Department is a money manager serving exclusively the Allstate corporation and its subsidiaries. We invest insurance premiums until they are needed by policyholders for claims," says David Yang, managing technology director.

"As an investment systems group we develop and integrate superior technology in trading systems, investment accounting systems, analytical tools, data warehousing and the capabilities to access time-sensitive information with our vendors," says Yang. "Almost everything we have in the investments group is client/server or web-based technologies."

Yang says Allstate has always relied heavily on information technology as a competitive advantage. "Over the last two years, there has been an increased investment in IT and information used in managing investments and making decisions," he says. In 1999, the IT staff implemented new accounting systems, trading applications and an investment data warehouse.

"Going forward, data warehousing will continue to be a significant effort," Yang adds. He also points to changes in the financial industry such as straight-through processing, TradeNet settlement, decentralization and extended trading hours. "All of these point to needed changes in architecture and the way technology interfaces with the business," he says.

To manage the multiple projects, Yang is looking for technical people who will be hands-on implementers and who will translate business needs into technology. "You'll stand out if you have experience in investments, developing business-to-business enabling technologies or have worked on implementations with positive bottom-line impact," he says.

Allstate offers continuing education internally and external seminars and classes. "Everything we do is very much about supporting and enhancing our capabilities to generate better returns," he says. "When you look at a couple of basis point improvements on a \$70 billion portfolio, it's very significant. Making sure our people



have the best skills and tools at their disposal to lead technology innovation is an easy decision."

The company also offers two professional tracks: technical and managerial. In addition to the IT group supporting investments, Allstate has IT groups supporting each line of its business. "Throughout the company, we're aggressively pursuing new ways of providing value to customers," says Yang. "So there is opportunity across the business."

"The best part of working at Allstate is the combination of good, strong cultural values and a supportive work environment," he adds. "Allstate values outstanding people and promotes team-oriented results."

Avnet, Inc. Phoenix, AZ

Avnet, Inc. is one of the world's largest distributors of semiconductors, interconnect, passive and electro-mechanical components and computer products from leading manufacturers. To provide ease of operation and efficient purchasing power to its customers, the company has embarked on a worldwide e-commerce operation that allows financial transactions to flow day and night, moving material and money in a seamless fashion.

"We continue to grow at a fast clip," says Steve Bandrowicz, vice president/GO of Avnet. "In 1999 we had revenues of \$6.4 billion and our proforma for 2000 is \$10 billion. The growth has come about as our clients have become more global, pressing us to expand in our ability to deliver products and services."

Research and development for Avnet is information technology, he adds. "We're providing e-business capability to every function for our customers, all overlaid on our global infrastructure. The Avnet systems to access

equipment are embedded into procurement systems on the shop floors of our customers."

To keep the IT capability pushing ahead of the projected growth, Avnet seeks people with project management, international business, architecture design and industry understanding skills. "It's a marriage of knowing how businesses operate with IT," says Bandrowicz.

"We have the best technical projects for those who are building their IT careers," he adds. "We believe that the kinds of technologies we're using will keep you here. You'll have the opportunity to work around the globe and see the impact of your work to an industry. That excites people."

On the individual side, Avnet has an organization development team within the IT group. Staff members work with employees to match personal goals with suitable training experiences, whether technical or managerial. "We have kept our turnover low through this kind of attention," says Bandrowicz. "We've been named by Information Week among the Top 10 for Innovation in Implementing IT."

Chase Manhattan New York, NY

If the measure of a company, for an IT professional, is the value it places on IT, then Chase Manhattan may have one of the top ratings. The New York City-based operation is stretching across the globe, providing everything from retail banking to corporate lending to credit cards. In the midst of this high-volume transaction business, Chase invests more than \$3 billion every year in upgrading its IT systems.

Patrick T. Allen, assistant vice president and technology staffing manager for Chase Business Services, says each division of Chase's business has its own IT support group. Chase also has a centralized division named E-Tech, which provides technology solutions to each business division as well as online web systems and business transaction support. Chase recently separated its Internet initiatives into a separate business division, Chase.com. The company's footing in e-business continues to grow as it acquires new business operations and becomes more involved in the funding of dot-com companies.

"We're staffing everything from LAN support engineers to e-business developers to senior application architects," says Allen. "About one quarter of our 74,000 employees are now involved in IT and operations - it's a huge part of how we do business." Chase has a multitude of technical platforms, including client/server, mid-range and mainframe systems. "We actually touch almost every realm of technology," says Allen. "That makes Chase a very strong player in the world of IT."

Allen recruits professionals for eight Chase divisions. Three staffing centers in the New York metro area are responsible for recruiting candidates for a wide variety of technologies including web development, database administration, trading floor support and online applications. "Chase's internal posting system allows IT professionals easy mobility through Chase's various businesses and technologies. Internal mobility is a huge part of Chase's recruitment strategy. Candidates move internally within the company, en-

abling them to work with a wide array of different technologies over the course of their career," says Allen. "We provide training in systems development and emerging technologies and also provide focused training on leadership and customer service."

"We're a 200-year-old company that continually sets a standard by which we measure our relationships with our clients, our employees and our investors," Allen adds. "We're a very diverse organization that offers excellent benefits including on-site backup daycare, flexible work arrangements, stock options and exciting challenges."

Not a traditional player in the area of financial services, Kaiser Permanente IT provides the critical leadership needed in providing financial information to its extended organization so informed spending decisions about technology can be made.

"Fiscal responsibility is important for any organization, and healthcare is no different," explains Clara Holmes, communication manager for KP IT.

With 90,000 employees, 10,000 participating physicians and more than 8.3 million members across the country, the transaction level is high, the intensity keen in providing up-to-date information to members, regulatory agencies and others who need to know.

KP IT also develops, builds, support and maintains all technology for the nation's largest non-profit HMO. In addition to providing web-based programming throughout the organization, e-commerce has emerged as an area for IT financial professionals as Kaiser Permanente increases its online procurement and Kaiser Permanente operations.

Doris Sotelo, recruiting manager for KP IT, says that Kaiser Permanente's information technology organization is one of the largest IT organizations in the United States and has need for financial professionals who are interested in technology and healthcare. During the coming year projects will include combining seven autonomous regional systems into a single system. Kaiser Permanente is a large purchaser of technology and other items—everything from band-aids to buildings. "Our biggest need this year for financial professionals will be in the area of e-commerce. We are in the process of implementing business-to-business solutions throughout our organization," says Sotelo.

"Most of our customers are large corporations with operations in several different regions," explains Sotelo. "In the past we couldn't provide them with data for the entire corporation. They need to be able to leverage this data so we are developing a new infrastructure to handle it. In addition, members will be able to access their account information. If they relocate, it will be easier for them to access their medical information and cost of services." In addition, KP IT needs people experienced in system integration, web integration, system deployment and maintenance and analysis. Skills include C++, Oracle, UNIX and web technologies.

"Probably the most critical difference in working at Kaiser Permanente IT and a financial services IT organization is that we feel we contribute to making a difference in our members' lives and the quality of their healthcare," says Sotelo. "We have an important partnership of IT with our clinicians to deliver high quality healthcare."

"Because we are not a product-driven company, we are able to also offer a more stable environment than the



more volatile dot-com world."

Kaiser Permanente is using, or in the middle of rolling out, the latest technologies, says Sotelo. "As such, there are opportunities here to mold and advance your career," she says. "In fact, we offer online training, at your pace, and more than 200 instructor-led courses."



When Jeff Birnbaum, a managing director in Morgan Stanley Dean Witter's Information Technology Group, evaluates the financial services landscape he finds that increasingly a greater emphasis is placed on technology. "The traditional marketplace has been turned on its head," he says. "There's higher recognition and emphasis placed on the technology function in this business. At MSDW, technology is utilized globally to move ever closer to the client."

"In addition to traditional technological functions, our infrastructure has been enhanced so as to provide the customer with a comprehensive range of capabilities," Birnbaum says.

This overlay of new services requires a full range of IT solutions. "The scale and diverse range of projects distinguishes us from other companies," explains Birnbaum. "Our technology solutions address all of our businesses, regardless of a specific region or product. MSDW is a global financial services firm, and our IT concerns reflect the scale of our company."

Projects range from routing and connectivity to developing portfolio management and tax accounting software for large hedge funds and risk analysis applications. "There are some true engineering challenges, as well as some pure mathematical problems. From database management to real-time messaging to web-enabled services, these areas require a rich combination of skills," says Birnbaum.

To support the development of these capabilities, Birnbaum looks for individuals with well-rounded skill sets, a desire to work in a team-oriented environment and an interest in the business. "As a firm, we believe in the importance of investing our resources in the development of our employees," Birnbaum says. "Along your career path, you'll receive training in everything from financial instruments to new technologies."

Birnbaum believes the best IT talent will want to join MSDW for three reasons—the people, the commitment

to technology, and the diversity of the work. "Our people simply want to work together and succeed. Given that technology plays an important aspect in our business, we are committed to innovation and trying new technologies and ideas. We pride ourselves in being leading edge in an industry that demands leading edge," he says.

The power suit for a typical Thomsen Financial employee is bicycle riding attire. One executive uses a skateboard to commute. The atmosphere is decidedly casual and creative. Combined with the brick-front industrial chic buildings just over Boston's Fort Point Channel, Thomsen Financial uses its casual and open atmosphere to provide some serious financial analysis, information, software and IT products to banks, stock traders, investment bankers and portfolio managers.

Ellen Sheil, staffing director, emphasizes that Thomsen Financial is a real IT company, providing web-enabled and packaged solutions to support the financial industry. As a wholly owned subsidiary of Toronto-based Thomsen Corporation, Thomsen Financial provides software products such as portfolio management software to portfolio managers in banks around the world and stock market traders who use Thomsen products to observe the market activity, minute-by-minute. AutoFix assists stockbrokers with buy-side products, and First Call subscribers can view daily analysts and the latest reports on stock activity based on Thomsen research.

"Our customers demand instant access to information about financial markets or analysis of that information," says Sheil. "And that only happens using IT."

Thomsen is looking for a wide range of technological skills, including programming in Java, QA and software engineers at every level. "We aren't generally known as a software company," explains Sheil. "But it is what we do. Right now we're working on products that will lessen the time between the decision to buy and the confirmation of a stock purchase. We also create proprietary databases, and as a global company, we're rolling out global products for our software."

Thomsen offers a unique workplace, according to Sheil. "We have all the excitement of a start-up with the foundation of an established, successful business. This is a place where you can develop ideas and see them through the actual launch."

To keep employees ahead of the learning curve, Thomsen Financial offers a corporate university with technical and organizational courses. Boston University is currently running a 28-month accelerated MBA program on site, two evenings a week.

"Because we have very different product lines, you have the opportunity to move to new projects and get a different set of experiences within the same business," Sheil says.

For more job opportunities in financial services companies, turn to the pages of IT Careers.

Interested in IT Careers?

If you'd like to take part in an upcoming IT Careers feature, contact Janis Crowley, 850.312.7807 or janis_crowley@itcareers.net.

Produced by Carol R. Hodden
Designed by Aldebaran Graphic Solutions, Inc.

PERCENT		PERCENT	
Andrew Corp. (H)	10.9	Bank Co. (NY)	-10.4
Network Appliance Inc.	10.6	Apert Technology Inc.	-10.6
Seagate Technology	10.6	Benetton Worldwide (H)	-10.9
Symantec	10.2	3c Inc.	-10.1
Hipernova Software	10.0	Process Tech Inc.	-10.0
Atulay Devices	9.9	Documentum	-10.0
Venture Software Corp.	9.7	Spyglass Inc.	-9.7
American Mkt. Systems	9.4	Rad Hat Inc.	-9.0
DOLLAR		DOLLAR	
Venture Software Corp.	9.94	Sony	-10.39
Network Appliance Inc.	9.90	EMC	-14.90
Atulay Devices	9.25	Apple Computer Inc.	-10.70
Seagate Technology	8.89	Qualcomm	-11.25
Symantec Corp.	8.44	Arbis Inc.	-9.58
Andrew Corp. (H)	8.44	Litman International Group Inc.	-9.08
Synopsis	4.00	Business Objects S.A.	-9.50
Viacom	3.94	Documentum	-8.19

Challenges Ahead for Online Travel Firms

Stock prices for two sites have dropped by 50%

BY JULEKHA BASH

WALL STREET breathed a sigh of relief last week when the Federal Reserve's decision last Tuesday to raise interest rates by half a percentage point failed to spook investors.

There has been enough concern about the Nasdaq stocks, including concern from online travel firms, which have taken a big hit during the past few months. The stock prices of two industry leaders — Travelocity.com Inc. [Nasdaq:TVLY] in Fort Worth, Texas, and Priceline.com Inc. [Nasdaq:PCNL] in Norwalk, Conn. — have dipped by approximately 50% since March.

Though the stock's performance is in part due to a general Nasdaq Stock Market Inc. slide, it also reflects investors' increasing concern over the long-term viability of online travel firms' business models, says Rob Milmore, an analyst at Arnold & S. Bleichroeder Inc. in New York.

And two recent analyst reports indicate that there are more challenges

ahead for the online travel industry. Jupiter Communications Inc. [Nasdaq:JPTR] in New York says it expects that online travel will slow from triple-digit growth to between 10% and 20% by 2003. And a recent report from New York-based Bear, Stearns & Co. [NYSE:BSC] predicted that 80% of the approximately 1,000 online travel Web sites will disappear by 2005.

Though analysts agreed that Travelocity and Priceline won't be among the victims of the shakeout, they anticipated further spending on acquisitions and branding campaigns by players interested in fueling their user base.

"Wall Street gave these companies breathing room to build brand and volume," said Philip Wolf, an analyst at PhoCusWright Inc. in Sherman, Conn. "That period is coming to an end."

Competition is also heating up from the bricks-and-mortar world. Houston-based consolidator Cheap Tickets Inc. [Nasdaq:CTIX], which derives most of its business in the off-line world, reported a profit of 10 cents per share for the first quarter.

Also, online travel firms will feel more heat this summer, when major airlines plan to launch their own travel Web site, T2. (The Senate has scheduled antitrust hearings for next month regarding the venture.)

One way online travel sites are fighting back is by diversifying. Priceline, for instance, recently unveiled a name-your-own-price gasoline card.

And online sites such as Travelocity, which makes money through commissions, will probably rely more on tour packages, said Milmore. "The commissions on most airline tickets will most likely go to zero," he said. ■



Turbulent Times

Lows and highs of online travel stocks:

Cheap Tickets Inc.

Priceline.com Inc.

Travelocity.com Inc.

See "Stocks" page

STOCK	WEEK	CHANGE	STOCK	WEEK	CHANGE	STOCK	WEEK	CHANGE	STOCK	WEEK	CHANGE
SOFTWARE OFF -4.4%											
Microsoft	10.1	10.1	Oracle	10.1	10.1	SAP AG	10.1	10.1	Sun Microsystems	10.1	10.1
IBM	10.1	10.1	Novell	10.1	10.1	Red Hat	10.1	10.1	Veritas Software	10.1	10.1
HP	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	CA Technologies	10.1	10.1
EMC	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
CA Technologies	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1
OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1
Veritas Software	10.1	10.1	NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1
NetScout Systems	10.1	10.1	OpenView	10.1	10.1	Veritas Software	10.1	10.1	NetScout Systems		

FRANK HAYES/FRANKLY SPEAKING

Down on the farm

WANT THE single-most compelling piece of evidence that we still haven't started learning the lessons of the Internet? Walk into your IT shop and look at all those rows and rows of cubicles. Here, in your IT department, are collected the best programmers, analysts, administrators and operations people you can afford to hire. Right here. In your cubicle farm.

Why?

Why are they here?

There are lots of places you really need those people to be. At the plant in Podunk, watching to see what parts of the factory-floor system actually are used — and which parts are unusable. Down in marketing, bagging out the design for the next version of the Web store. Cheek to jowl with users in customer service, figuring out why their response time gets awful sometimes.

Some of these people should practically be living with users. But they're not. We've got them all living — or at least working — in these cubicles.

And why? Because we really haven't begun to learn the lessons of the Internet.

If there's one thing the Internet should have taught us, it's that IT doesn't all have to be in the same place. The search engine doesn't have to be on the same server — or in the same state — as the shopping-cart system. The shipping department doesn't have to be part of the same company — or even in the same country — as the sales operation.

They can be just about anywhere — as long as they can communicate really, really well.

Plenty of dot-coms figured that out early on. And some realized they didn't need a cubicle farm full of programmers. All they actually needed was really, really good communication among their developers — wherever those developers happened to be.

Why have so many corporate IT shops failed to figure out the same thing?

With instant, pervasive communications, IT people can connect to do their work from anywhere, anytime. Our salespeople understand that — they go where the customers are. Why don't we?

Part of the reason is history. We've always done it like this. Way back, when programmers needed access to the keypunchers, and later

their 3270 terminals had to be wired to the mainframe. Those days are gone, but we keep cramming programmers together because, well, we've always done it like this.

Part of it is poor personnel management. We trust our IT people enough to put the fate of the company in their hands — but we don't trust them to put in a full day's work if they're more than shouting distance from a manager's desk. (And we indulge the fantasy that, if they're within shouting distance, they automatically will put in a full day's work.)

Part of it is a corporate culture that demands face time with bosses and physical evidence that managers are actually managing someone. In that culture, if they can't be seen, they don't exist.

And a big part of it is lousy communications.

Stuffing IT people into a cubicle farm makes talk cheap and meetings easy. It masks poor communication skills and lets everyone conveniently ignore mangled messages, incoherent explanations and empty words. Hey, with all that talking going on, how could people not be communicating?

Right now, there's a price to pay for isolating your IT people from that cubicle farm. It's a price in visibility, in user contact and in business effectiveness. That price — call it the cubicle farm tax — will get higher as business moves faster and you need to understand your users better.

You can refuse to pay that tax. You can start moving your people right now to where they'll be most effective. For a lot of them, that won't be down on the farm.

Or you can pay the tax — and keep paying. But why? ■

Hayes, Computerworld's staff columnist, has covered IT for more than 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

WEBMASTER PILOT FISH at a hot dot-com has full access to the servers — he can shut the company down with a keystroke.

"What I can't do is use the bath-spoon after hours," he grumbles. Since he's a contractor, after 7:30 p.m., his ID card won't unlock the doors between him and the men's rooms. The boss won't make an exception — policy is policy. Workaround: The fish wedges one of those annoying magazine insert cards in each lock so it won't click shut. He also has to do that if he needs food — except then it's the front door that's open to the world.

HOSPITAL GETS Web access, and the CIO assigns a tech to audit the sites that users visit.

"Unfortunately, he took it too seriously," says our pilot fish, and the tech describes to the CIO doctors' visits to nonmedical (but anatomically vivid) sites. "Attention was swift and decisive," the fish says. "It was ordered to install a PC with a direct, unmonitored connection so the physicians could surf the Web without IT's watchful eyes."

NEVER-NEVER LAND Florida HMO moves its disaster recovery backup site from a secure building in Philadelphia to Orlando so the CIO can visit the site more often, a *Time* reporter reports.

"That way, if a hurricane takes out the main site in Tampa, there's a good chance that the

one in Orlando will be blown away as well."

THIS SUPPORT MANAGER blanches when she learns how much control the system administration passwords grant. Sysadmin pilot fish offers to tell her the passwords. No, she says, but do "put the passwords in a document on a file server so everyone in the support group can access them in case of an emergency." And, the fish says, he can't even make the file password-protected.

A NONTIECHIE BOSS is promoting users that the pilot fish will develop a sophisticated financial application using SAP. Problem is, "the company owns SAS software, not SAP," the fish says. "When I pointed this out, he replied, 'SAP, SAS, P... S, it's all BS. All this software does pretty much the same thing. Just push the buttons and make it work.'"

Like last week, *Synapse* sent out its "Synapse Snafus" newsletter with a subject line reading "29 WAYS TO SAY I LOVE YOU!" Think any of them made it through the anti-Love Bug virus filters? Never mind the subject line; just send Sharkey your story: sharkey@computerworld.com. If it posts, you get a Shark alert. And see fresh Shark bait every day at computerworld.com/sharky.

The cubicle farm tax will get higher as business moves faster.



The 5th Wave



TICKETMASTER.
IBM NETFINITY
MAGIC ROCKS.

IBM



SUNRISES, SUNSETS, AND KINGSTON SERVER MEMORY.
GUARANTEED RELIABLE.

Kingston MEMORY
TECHNOLOGIES

FEW THINGS IN LIFE ARE GUARANTEED. So when you find something that is, you stick with it. That's why more Fortune 500® companies standardize on Kingston® server memory than any other memory brand. Because Kingston guarantees reliability with every module it ships. How? By subjecting each module to the most rigorous testing in the industry. By promising the highest server uptime available. And by certifying 100% compatibility with the system or class of systems it was designed for. Add free technical support, and a lifetime warranty, and you've got memory guaranteed to get you through a lifetime of sunsets. Don't wait until tomorrow. Get the industry's most reliable memory today. Go to www.kingston.com/jump/reliable and register to receive your free Kingston server guide. Or call (800) 259-8965.

Kingston
TECHNOLOGIES
COMPUTING WITHOUT LIMITS®



© 2001 Kingston Technology Corporation. All rights reserved. All other trademarks and registered trademarks are the property of their respective owners.